GORE® GASKET TAPE SERIES 500

GORE® Gasket Tape Series 500 helps to achieve greater sealing efficiencies with large steel piping and equipment. Please follow the instructions below:

Gasket Selection

1.1 Select gasket width and length

Gasket width and length can be determined from flange drawings. Select the gasket width that provides the following coverage:

For raised face and flat face flanges:

- 30–50% seating when using standard flanges according to EN or JIS.
- 50–75% seating when using flanges according to ANSI standard.
- The gasket width for non-standard flanges should be designed by calculation to ensure sufficient gasket stress.
- When determining the appropriate gasket tape length add at least ~50 mm (2") for the skive cut.

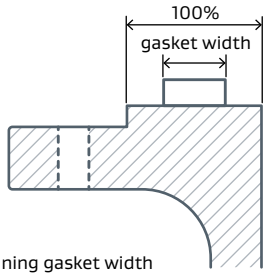


Figure 1: Determining gasket width

For tongue and groove flanges:

- The entire width of the groove should be covered by the gasket.
- Ensure that the tongue is slightly taller than the groove depth.

For divider bars in heat exchangers:

- The gasket width should cover the entire divider bar width.

1.2 Select gasket thickness

- Most applications require one layer of 3 mm (1/8") gasket tape.
- Conversely for flanges with deviations >1 mm (0.04"), the 6 mm (1/4") gasket tape is recommended.
- Should the flange show irregularities of more than 2 mm (0.08"), please contact Gore.

Gasket Installation on Raised Face or Flat Face Flanges

2.1 Open flanged connection

For ease of installation, open the flanges a minimum of 15 cm (6"). Ensure the flanges are well secured for a safe working environment.

2.2 Clean and dry sealing surface thoroughly

To ensure optimal adhesion, remove all oil, graphite, and other residue. The flange surface must be completely dry for the gasket adhesive to adhere.

The adhesive bonds effectively to flanges with surface temperatures ranging from 5–50 °C (40–122 °F).

If your installation surface temperature is outside of this range or you have other challenges preparing the flange surface, please contact Gore.

IMPORTANT

The adhesive performs best on a surface that is clean, and at a temperature that is comfortable to the touch. Flange surface MUST be completely dry. If necessary, gently warm flange to remove any condensation.

2.3 Perform initial skive cut

Unwind about 50 cm (1.5') of GORE® Gasket Tape Series 500 onto a clean, firm surface. Do not use the flange surface for this purpose. Cut the end of the tape with a sharp knife using the skiving technique.

Hint: Use a fine-tip permanent marker to draw the desired diagonal line on the side of the gasket tape, as a cutting guide. To achieve the desired angle of approximately 10°, the length of the skive cut (L_s), should match the dimension in Table 1. Avoid making it shorter.

Tape thickness (t)	Skive cut length (L_s)	Thickest skive section (h), at target of ~1.3x (t)
3 mm (1/8")	15–20 mm (3/4")	4 mm (1/6")
6 mm (1/4")	30–40 mm (1 1/4")	8 mm (1/3")

Table 1

IMPORTANT

When using the skiving technique to cut the gasket tape, the skive-end MUST be cut at an angle so it tapers smoothly to a point where it meets the flange. Do not leave a step at the skive-end (see Figure 2). Be sure to use proper protective gloves when using a knife.

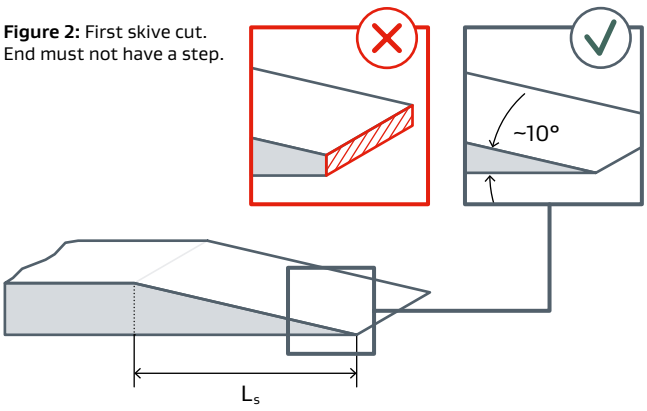


Figure 2: First skive cut. End must not have a step.

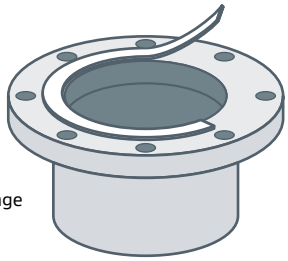


Figure 3: Tape positioning on flange

2.4 Position and apply gasket tape

- Start applying the gasket tape by positioning the skived end of the gasket tape near the designated starting bolt (Figure 3). Try to avoid locations where obstructions will hinder access for the second skive cut.
- To prevent the adhesive from picking up dirt, do not remove the backing-strip until just before installing the gasket tape. Be careful not to dislodge the adhesive from the gasket while peeling off the backing strip.
- Bend small increments of gasket tape to the required flange arc and apply the side with the exposed adhesive to the flange, pressing out any gaps between the gasket and flange surface.
- Continue installing the gasket tape in sections of about 25 cm (1') at a time, around the full circumference of the flange. Ensure that each section is properly positioned and adhered to the flange before installing the next section.
- To ensure proper gasket positioning, the gasket OD area MUST maintain smooth and complete contact with the flange, following the same curvature as the flange.
- On some smaller flanges, the gasket ID area may intermittently re-lift/become wavy. This is acceptable: it will be flattened when the top flange is placed and torqued.

2.5 Complete the layer of gasket tape

- Complete the gasket by placing the tape over the first skived end, extending the tape at least ~15 mm (1/2") beyond the top of the skive ramp, and cutting the end square. Press out any gaps between the two gasket layers at the first skive ramp.
- To prepare for the second (final) skive cut, locate and mark the start and end points.
- The start point of the second skive cut is located at the top of the gasket material, at a distance of 1/3 (L_s) from the pointed end of the bottom skive cut (see Figure 4). This will make the tallest section of the skive 1/3 thicker than the base-layer gasket, indicated by (h) in Figure 5.
- The end point of the second skive cut is located where the two gasket tape layers meet, at a distance of 1/3 (L_s) past the top of the first skive ramp.
- On the side of the gasket tape, mark a straight line that connects the start and end points of the second skive cut.

- Cut away the gasket material along the marked line, keeping the knife blade parallel to the flange face to ensure that the skive is approximately the same length from OD to ID.

Cut away the gasket material at an angle, so that the maximum height, h, matches the dimension in Table 1.

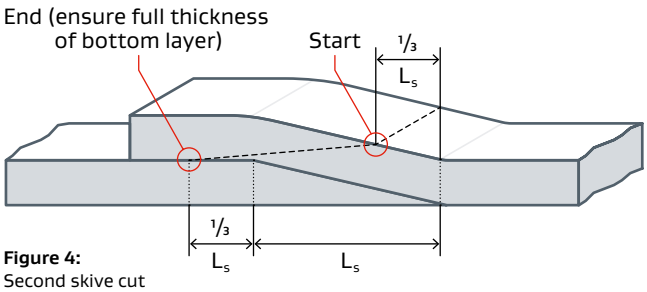


Figure 4:
Second skive cut

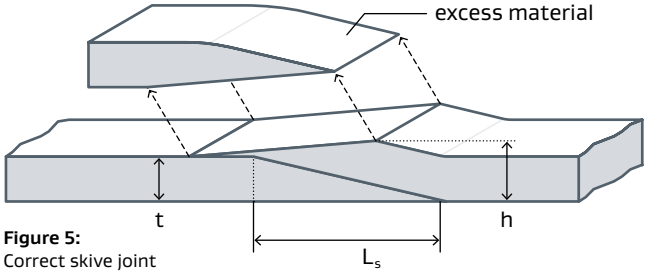
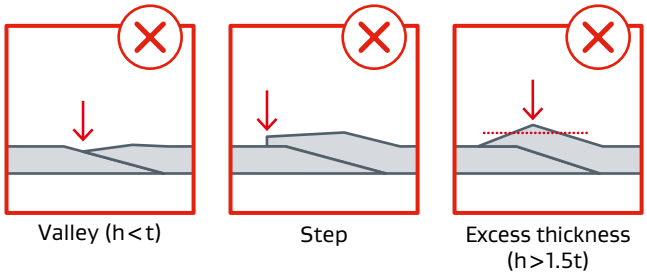


Figure 5:
Correct skive joint



For large flanges, multiple joints may be required. Joints should be placed at a bolt hole and as far from one-another as possible (~180° apart for two joints, and ~120° apart for three joints).

Gasket installation on Tongue and Groove Flanges

3.1 On the tongue

Follow steps 2.1 through 2.5 to install the gasket tape. The adhesive strip allows for overhead gasket installation. When closing the flange ensure the gasket tape remains in position.

3.2 In the groove

Follow steps 2.1 through 2.4 to prepare and begin laying the gasket tape within the groove. To complete the gasket described in step 2.5, lay the last 30 cm (1') of the gasket tape in the groove, and mark the location of the starting skive cut using a fine-tip permanent pen.

Perform the closing skive cut on a flat surface. Complete the gasket by removing the rest of the adhesive backing, laying the gasket in the groove, and overlapping the skived cuts so they resemble Figures 4 & 5.

Gasket Installation on Heat Exchangers

4.1 Gasket installation on heat exchangers around tube bundle

Follow steps 2.1 through 2.5.

4.2 Gasket installation on heat exchangers in a groove

Follow steps 2.1 through 3.2

4.3 Gasket installation on divider bar

- Completely clean the sealing surface per step 2.2. Measure and cut the gasket tape so the length is slightly oversized by 3 mm (1/8"). Perform a 90° butt cut at both ends.
- Remove the adhesive backing and firmly press the end of the gasket into the outer gasket. Lay the tape across the divider bar and firmly press the other end into the outer gasket.

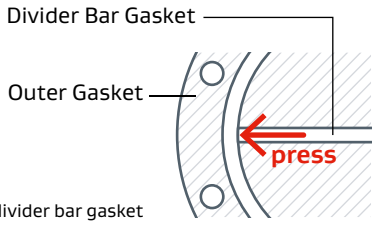


Figure 6: Apply divider bar gasket

IMPORTANT

Divider bars in Heat Exchangers rarely operate at significant differential pressures, therefore, a butt cut pressed firmly into the outer flange gasket will provide an adequate and successful seal. Gore does not recommend any alternative cutting techniques or overlapping at the divider bar and circular gasket interface.

Gasket Installation on Rectangular Flanges

5.1 Prepare the gasket

Follow steps 2.1 through 2.3.

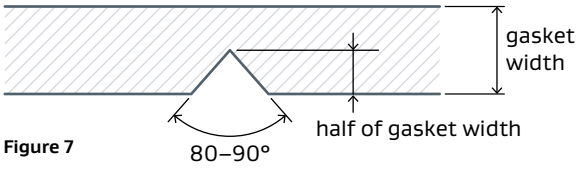


Figure 7

5.2 Turn sharp corners

In order to ensure uniform stress to seal, GORE® Gasket Tape Series 500 should be notched at sharp corners. When approaching a sharp corner, cut away an 80–90° notch from the inner edge of the tape as shown in Figure 7.

IMPORTANT

Ensure you leave half the gasket intact.

Bend the gasket around the corner as shown in Figure 8. It is then held in place by the adhesive backing.

5.3 Complete layer of gasket tape

Follow step 2.5.

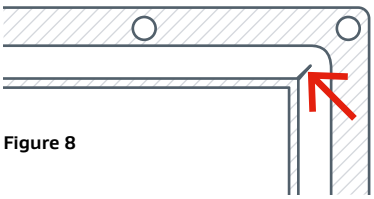


Figure 8

Flange Torquing

6.1 Confirm target torque

As a general rule, it is advisable to make the best possible use of the available bolt force. Follow the equipment manufacturer's torque recommendations at all times. Confirm this meets or exceeds the minimum gasket stress (Q_{min}) to achieve the seal required for your application. Please review the specifications in the GORE® Gasket Tape Series 500 data sheet or contact Gore.

6.2 Torque

- Close the flanged connection
- Use a calibrated torque wrench to tighten lubricated bolts, working in a star pattern with three incremental passes: one each at 30%, 60% and 100% of recommended torque.
- Follow with circular passes at 100% of recommended torque until no further nut rotation occurs.
- Allow at least 4 hours for flange system relaxation, followed by circular passes at 100% of recommended torque until no further nut rotation occurs.

For additional detail, refer to industry-standard best practices such as ESA/FSA "Gasket Installation Procedures" or ASME PCC-1.

6.3 Thermal cycle

Thermally cycle the flange connections by bringing the equipment to maximum service temperature for a minimum of one hour. Allow flanges to cool (to approximately ambient temperature) before retorquing.

6.4 Retorque

Retorque is recommended once after the first temperature cycle and after the flange has cooled down to ambient temperature. A temperature cycle is defined as an internal temperature difference (ΔT) greater than 100 °C (212 °F) for at least 1 hour.

Be sure that the originally selected torque is maintained.

IMPORTANT

Flanges MUST cool to near ambient temperature before any retorquing.

To see how easy it is to install GORE® Gasket Tape Series 500, please view any of the installation videos below:

Skive cut and standard installation on a flange

Installation on the divider bar

Sealing in the groove on a heat exchanger

Sealing around tube bundles

For further questions about installation, or about our gaskets in general, contact your local Gore representative.

For gasket selection criteria, technical information, and a complete listing of local sales offices, please visit **gore.com/sealants**.

PLEASE VISIT GORE.COM/SEALANTS TO FIND CONTACT DETAILS FOR ALL LOCAL SALES OFFICES.

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