

Seaming of dryer fabrics

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If there is one part of a dryer fabric more critical than any other, it is the seam. Properly connected, the seam will be as strong as any other part of the fabric. Improper seaming, however, is responsible for many short-term failures of dryer fabrics. If the seam cable or pintle is not well secured, then it may "migrate" or work itself out of the seam. If loops are missed, then the seam may pucker and distort, accelerating wear in one area.

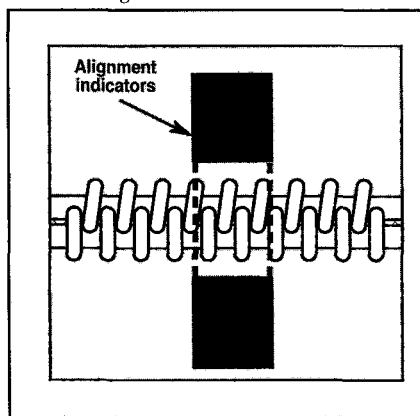
For these reasons, it is important that everyone involved in the seaming of a dryer fabric have a thorough knowledge of basic seaming techniques as well as any special steps necessary to join a particular kind of seam.

Types of seams

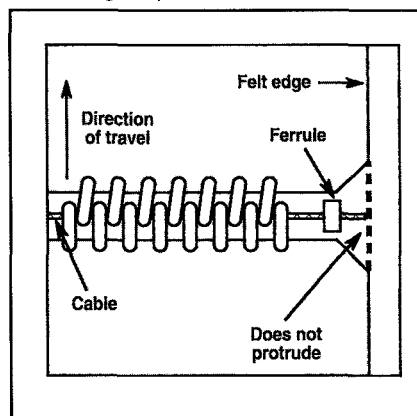
There are four major classes of dryer fabric seams in use today: spiral seams, pin seams, linked seams, and clipper or metallic seams. Within these styles are several variations due to differences in the seam material, the number of loops per inch, the caliper, etc. A seam can use loops of synthetic filament attached to a webbing, extended fibers from the fabric itself, or metal hooks. The type of seam used on a dryer fabric will depend on the fabric, the application, and clearances within the dryer section itself.

The two sides of a seam are held together with a pintle or seam cable. This may be a single or double strand of heavy monofilament yarn or a yarn with a metal core. Properly inserting this pintle and securing it are critical to the life of the seam and the fabric.

1. Match alignment indicators



2. Securing the pintle-ferrule



Preparation

Seaming instructions are normally packed with each dryer fabric. Not all seams are alike, so these instructions should be read carefully and followed faithfully.

In general, the best location to seam a fabric is a place where the

seam can be placed on a smooth, flat surface that supports the fabric to prevent machine-direction pull or strain on either end. The preferred seaming location for all positions is a spanner board or catwalk. The surface of a cool dryer cylinder may be used on top positions as a last resort.

General seaming guidelines

1. Position the fabric for seaming. Pull the two sides of the seam together—you may even want to overlap them slightly. Look for the alignment indicators printed on the fabric ends. Whether arrows or squares, there will be a set of indicators within 12 in. of either edge. Match the indicators closest to you exactly as shown in Fig. 1.

2. Some seams come equipped with a Velcro or zipper assist to hold the sides together while seaming takes place. The seaming assist should be attached at this time.

3. *Large seams:* At the paddle side, join the seam, integrating the loops from the two sides. When the seam is properly aligned, intermesh the loops for a distance of a few feet. Insert the lead wire into the matched loops. This will ensure that the seam is started properly. Proceed across the fabric intermeshing the seam loops or clippers. Avoid doubling loops if possible. Check to be sure that each set of alignment indicators is matched.

4. *Small seams:* At the guide paddle side, insert the lead wire and push it through the seam or as far as possible until the seam begins to bind. At that point, pull it and the pintle cable slowly

through the seam. Resume seaming at the next seam loop, being careful to keep the cable free of tangles or knots. When the lead wire is across the width of the fabric, pull it and the pintle cable slowly through the seam. Do not pull the pintle rapidly, otherwise it may burn through the seam loops.

5. Secure the end of the pintle to prevent migration. One of several methods may be used depending on machine speed, type of guide mechanisms, and obstructions. Commonly used methods include tucking the pintle back into the seam, knotting the cable ends, and crimping on cable ferrules. The common goal is to have a taut cable. This is accomplished by securing one end of the cable, pulling the opposite end tight, and securing it.

6. Silastic adhesive is often used to seal the ends of the cable and protect them from working loose.

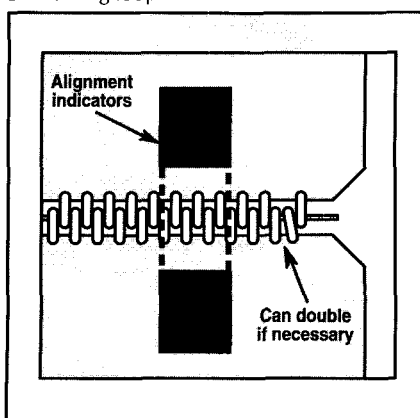
Spiral seams

This seam employs a spiral of heavy monofilament yarn sewn into the folded back fabric or webbing. Spiral seams may employ a single or double pintle.

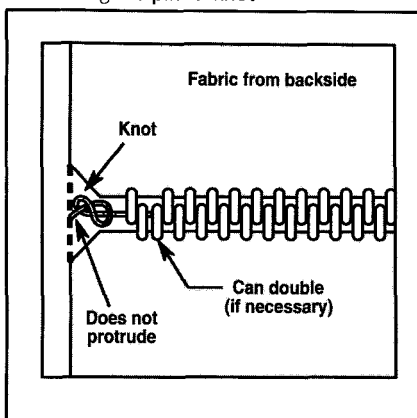
Spiral seaming steps

1. Place the fabric on a flat surface.
2. Check to make sure the two seam ends meet.
3. Pull out and discard the metal cable attaching the leader to the seam. Make sure the weight of the leader and old fabric or harness is off the seam before removing the metal cable to prevent damaging the seam.
4. Overlap the seam 1–2 in. across the width except for the edge area where you will begin joining.
5. If seam grippers are available, position one every 2–3 ft across the width. If the felt has a Velcro assist, overlap the Velcro to hold the felt together.
6. Align the seam edges using the black alignment marks so the seam edges match exactly. Mesh loops singly if possible. However, if the loops want to “double” do not force them to mesh singly as this will strain the seam.
7. Once the front edge is together, insert the pintle. Be careful not to miss any loops. The following techniques will assure accurate seaming:
 - A. One person should feed the cable leader wire while the seamer pulls the seam together. Another person should provide light and check behind the seamer for missed loops.

3. Meshing loops



4. Securing the pintle-knot



B. If feeding the pintle becomes difficult, check to make sure seam grippers have been replaced on areas that have been joined. This will keep tension from pulling on the seam. If you continue to encounter problems, a stitching technique should be used (see box). Do not use force as it

may bend the pintle. Also, if the fit is so tight the pintle must be forced, it will be extremely difficult to pull through the thicker swagged section where the lead wire is connected to the monofilament cable. You may be able to pull it part of the way across only to have the cable break.

Stitching technique: Feed the lead wire or cable through the seam for 2–3 ft, then point the pintle out of the seam. Pull the full length of the steel cable along with monofilament cable through. To make sure the opposite end of the cable does not get pulled into the seam where it could disappear, tie a knot 1–2 ft from the end of the cable. Pull the cable slowly. Once you have pulled it through, reinsert the cable back into the following loop preceding the last loop seamed. (Be careful not to skip any loops.) Then feed the lead wire or cable through the seam for another short distance and pull it out again. This should be repeated as many times as needed to finish seaming.

C. Once the cable has been slowly pulled across the width of the seam, tie a loop knot in the end and pull it up tight to the seam. Cut the cable 4 in. from each end. Insert these ends back into the seam (above loops). An alternate method of securing the pintle is to attach metal ferrules to the protruding cable ends—front side and back side as shown in Fig. 2. The cable ends must not protrude beyond the edge of the seam.

8. Apply approximately 4 in. of silastic adhesive along the cable ends on both the face and back sides of the seam. Use a liberal amount of silastic to assure penetration.

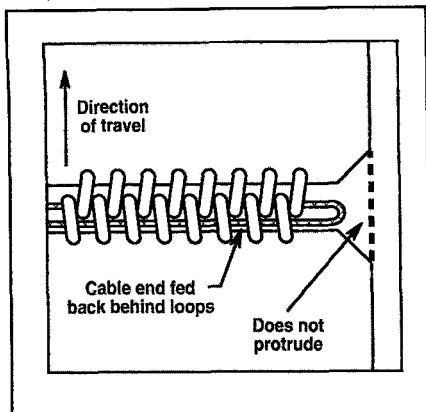
9. Realign the seam area with the body of the fabric so the edge forms a straight line.

10. Now you are ready to take up slack and apply normal running tension.

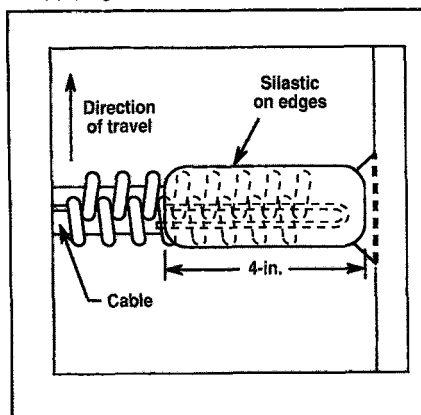
Pin seams

These fine, low-profile seams are usually formed from yarns of the fabric itself. A pin seam generally has the most loops per inch of all seams. Due to the extremely small loops, the most common method of joining pin seams is the stitching technique. A description of this technique follows; however, new

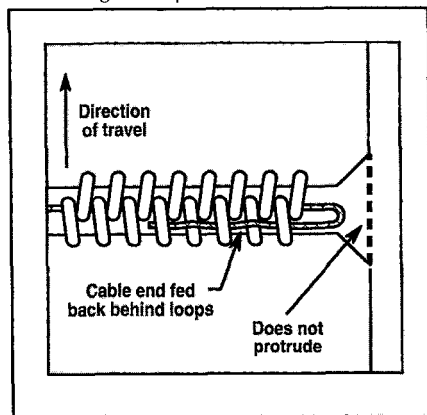
5. Y-pin/spiro pin seam



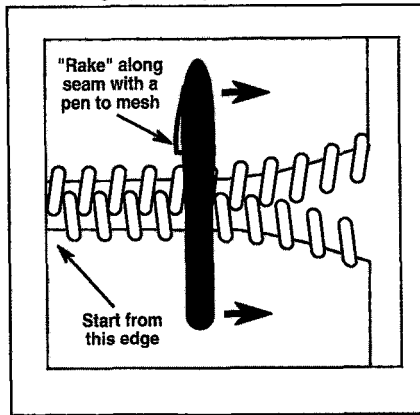
6. Applying silastic



7. Stitching for ST-pin seam



8. Meshing by "raking"



seaming aids allow the use of full-width lead wires on pin seams without stitching.

Pinseaming steps

1. Line up the seam edges and alignment indicators exactly. Mesh loops singly, but if the loops want to "twin" do not force them to mesh singly (Fig. 3). This will strain the seam.
2. Tie a knot in the end of the pintle leaving approximately 4 in. beyond the knot.
3. Push the pintle cable 2–4 ft through the seam. Then, bring it out of the seam and pull the seaming cable through until the knot in the end of the cable is pulled up against the first loop.
4. Reinsert the pintle cable for another 2–4 ft, bring it out again, and pull the cable through. Continue repeating this procedure across the width of the fabric.
5. Once the pintle has been pulled through the length of the seam, secure the end. One method is to tie a knot in the pintle and work the knot back toward the seam as shown in Fig. 4. Cut the excess cable to leave about 0.5 in. of cable outside the knot on either side. (Before cutting the cable on any seam, reinspect the seam to be sure there are no doubles or missed loops.)

Other methods used with specific seams are as follows:

Y-pin seam & spiro pin seam—Take the cable end and feed it back behind the loops for 1.5–3 in., ensuring that the cable does not protrude beyond the edge of the fabric as shown in Fig. 5. Apply silastic to the face and back of this tucked-back area as shown in Fig. 6.

Pin-line seam—Either tuck the cable back into the seam or attach metal ferrules and crimp them onto the protruding cable ends—front side and back side of the seam. The cable ends must not protrude beyond the edge of the seam.

ST-pin seam—On the guide paddle side take the cable end and sew it back through the seam loops for 1.5–2 in. in the cross-machine direction using an over-and-under stitching technique as shown in Fig. 7. On the opposite side, tie a knot in the pintle and work it back toward the seam (see Fig. 4). Apply silastic to the front and back.

6. Realign the seam area with the body of the fabric so the edge forms a continuous straight line. Take up slack and apply normal running tension.

Metallic or clipper seams

Metallic or clipper seams consist of metal hooks or clips attached to a webbing sewn to the dryer fabric. They should be joined in the same manner as spiral seams with one exception: the metal clippers must be singly alternated. They may not be doubled.

Metallic or clipper seaming steps

1. Remove the leader from the fabric.
2. Carefully uncoil the lead-in wire.
3. On a flat surface, ensure the edges and alignment indicators are matched exactly.
4. Starting at the front edge, link the hooks together in single alternating fashion. Do not double. At the same time insert the lead-in wire.
5. If a ferrule is being used, crimp it to the trailing end of the pintle.
6. When the lead-in wire has passed through the seam, pull the seam through until the locking ferrule on the end of the cable is snug against the first hook. If a ferrule is not being used, use a loop knot approximately 4 in. from the end to temporarily stop the cable from pulling completely through.
7. Once the cable has been pulled through the entire seam, cut the end of the seam cable that is attached to the lead-in wire and either tuck it back into the seam or crimp a locking ferrule onto the end leaving 0.5 in. of slack.

8. Cut off excess seam cable.
9. Apply silastic.

Twin cable metallic seams

When installing twin pintles in a spiral seam, use the same procedure described above. The single lead wire is used to pull both cables through the seam together.

Linked fabric seams

The weave of linked dryer fabrics does not require a specially created seam. The fabric is joined by simply inserting a pintle through the interlocked loops of the two fabric ends.

Linked fabric seaming steps

1. Bring the two sides of the seam together on a flat surface with tension completely relaxed. Both spirals must point toward the same side of the fabric.
2. Match up the black alignment indicators exactly. Mesh the spirals together singly by "raking" a pen along the seam in the direction shown in Fig. 8. Start at the edge indicated. Do not double loops.

3. Insert lead-in wire full width through the meshed loops. When it is through, pull the monofilament slowly through the seam and cut off the lead-in wire.

4. Take cable end and feed back behind spirals for 4 in., ensuring the cable does not protrude beyond the edge of the fabric.

5. Apply silastic along 4 in. of each seam end. Use a liberal amount of silastic to ensure penetration.

6. Take up slack and apply normal running tension.

Summary

Because of its importance, the task of seaming a dryer fabric is normally performed by the most experienced mill employees. Over time, however, people may take shortcuts because of time constraints and the desire to resume production as soon as possible. Whether seaming is "second nature" to you, or a job you have yet to do, it's worthwhile to take your time and perform every step carefully. It's also good to review the basics. This is especially true if you're seaming a new type of fabric, in which case you should be sure to review the seaming instructions thoroughly before starting. **T**

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