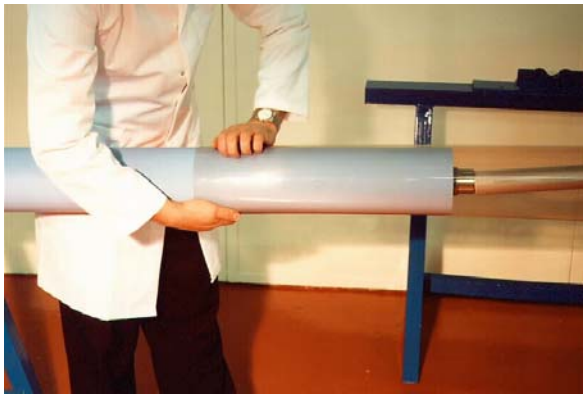
INSTRUCTIONS FOR FITTING HOLSCOT HEAT SHRINKABLE ROLLER COVERS IN FEP & PFA

Please read these instructions carefully before attempting to fit a Holscot Roller Cover. Care and patience are required to do a good job. These instructions should be followed for the first few applications.

A. MATCHING THE ROLL & ROLLER COVER

First, ensure that the roller cover will fit easily over the roll. The sleeve should be longer than the roller surface as it may change length slightly during installation. Cover shaft ends, bearings, or other sharp projections that may cause scratches or leave deposits on the internal surface of the roller cover. A lint-free rag placed over the shaft provides good protection. Slip the cover onto the roller carefully to avoid nicks, creases or scratches. It may be easier to stand the roller on its end during assembly.



B. HEAT SOURCE

Hot air guns, capable of delivering air temperatures up to 600 degrees C are recommended for shrinking the roller cover. It may be desirable to partially close the inlet air control on the gun to reduce air flow. Holscot Industrial Linings Limited recommend the use of the Leister " Electron " Hot Air Blower.

NOTE. **Through experience it has been proven that oven or steam heating is not suitable**

C. ROTATING THE ROLL

During shrinkage, heat must be applied evenly around the circumference to ensure a finished surface free of wrinkles or bubbles. To ensure even heating when localised heat sources are used (such as hot air guns), some method is required for rotating the roller at a fairly uniform speed (10-30 revolutions per minute is adequate).

Experience has shown that the roller should be rotated by its axis. Rotational forces applied through the unshrunk sleeve may cause twists and wrinkles.

Hand rotation of a roller suspended on journals is often all that is necessary. However, a lathe or similar device is ideal.

D. <u>SHRINKING ROLLER COVER ONTO ROLL</u>

The surface of the roll to be covered must be smooth, clean and dry. The roll need not be machined or ground, but foreign materials such as grease, oil, dirt, loose scale, product build up, etc., must be removed. The roller should also be slightly above room temperature before the cover is installed. A warm roller is faster. This applies particularly to metal rollers which must be warmed before the sleeve is fitted.

Position the Holscot Roller Cover so that it projects about one inch past the roll face shoulder at the starting end. Most of the excess cover will therefore project beyond the opposite end.

Inspect the assembly and remove all foreign particles between the cover and the roller. Begin shrinkage pointing the gun at the rotating roll about two inches from the starting end. The gun muzzle should be held two to three inches away from the work and be pointed slightly towards the roll end. Heat this area until the cover shrinks down smoothly onto the roller. As the cover shrinks tightly, the gun should be brought closer to the work and positioned one inch away.

Shrink the cover which extends over the starting end to its smallest diameter. This contraction may tend to pull the cover over the roller face shoulder, so be sure to maintain the cover extension at the opposite end of the roll.

The end of the cover is now attached and the unshrunk portion should stand out at a relatively uniform distance from the roll surface.

At this point, stop the rotation of the roll and line up the roll cover along its length. It should be straight with the minimum of twist.

Resume rotation. Position gun nozzles about one inch from the roll cover for a metal roll, or about two inches for a non-metallic roll (i.e. Rubber, wood, etc.). Move the gun slowly and symmetrically along the roll towards the unshrunk end. The gun should always point towards the starting end with the angle of the gun approximately 60 degrees to the roll surface. ***Never aim the gun at the unshrunk end ahead of where you are working.***

The exact traversing speed of the gun is difficult to predict as it will be influenced by the heat capacity of the roller, its diameter, and the amount of shrinkage required. As a starting point, a speed of about one inch per minute is suggested. Let the job dictate your speed. ***When you have found a speed which seems to be appropriate, slow down a little bit more.***

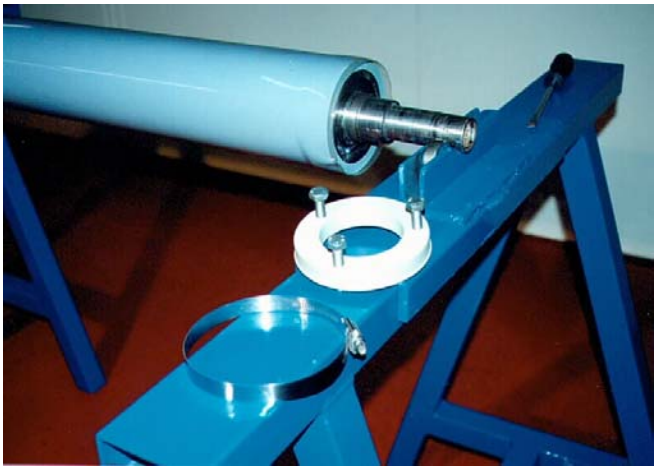
Under no circumstances should two areas of the roll cover be shrunk so that there is an unshrunk portion between them. If the cover lengthens as it shrinks one end must be free, or wrinkles and bubbles may result.

If a wrinkle or other surface distortion develops during the shrinking process, stop forward motion of the gun and avoid heating the problem area directly. Move back down the roll a little and approach the problem area slowly. Watch out for overheating on rubber rolls. It may also be helpful to stroke the distorted area with a soft clean rag . The strokes should be made from the area being treated to the unshrunk end. Once the distortion is removed, resume as before. On metallic rolls, wrinkles often appear due to overheating. These normally disappear on cooling.

Once your technique is developed, it may be desirable to try shrinking from the centre of the roller and working to each end in turn. This has proven successful with longer rolls. However be very careful at the start to avoid wrinkles.

*****IF YOU ARE NOT CONFIDENT, HAVE YOUR COVERS FITTED BY A QUALIFIED HOLSCOT ENGINEER .**

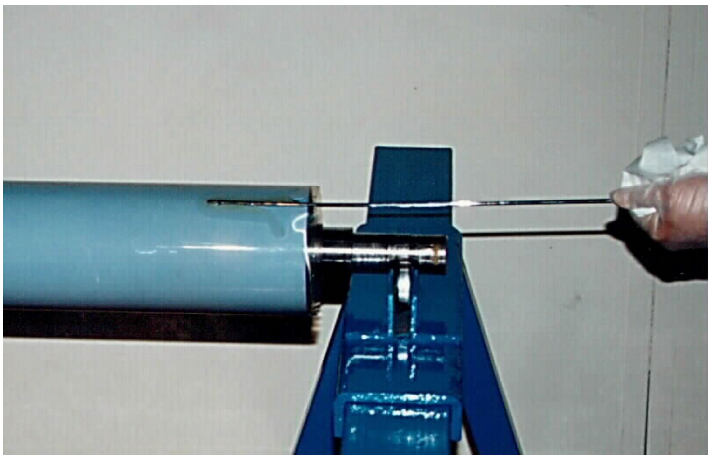
E. STRETCHER



With sleeves for larger diameter rollers (above 6" dia) there will be a tendency for the sleeve to grow in length during shrinkage. It is important to maintain a tension on the sleeve to avoid the possibility of wrinkles in the sleeve. In order to do this we recommend the use of a stretcher. This comprises a ring manufactured from either wood or perhaps polypropylene the outside diameter of which suits the outside diameter of sleeve which has a hole in the centre accommodating the shaft of the roll. It should be fitted with three adjustable screws and a jubilee clip which grips the sleeve to the stretcher. The ring is assembled inside one end of the sleeve and the sleeve is gripped to the ring by means of the jubilee clip. During shrinkage, the screws are adjusted to maintain a tension on the sleeve. For very long rollers the ring may need to be removed, the sleeve trimmed and the ring repositioned.

F. BONDING

For larger diameter rollers and / or rollers which will be subjected to pressure and / or high temperature it is recommended that the sleeve be bonded to the roller. The sleeve itself must be etched on the I.D. and this must be specified on your order. The operating temperature of the roller must also be stated because there are two adhesives available which are for different operating temperatures.



The sleeve must be shrunk down along most of its length except for the last 4" (100 mm) on both ends to facilitate injection of the adhesive between the cover and the roll.

The adhesive is supplied in cartridges. The cartridge is fitted into the glue gun and fitted with a mixing needle.

The adhesive is mixed as it is pushed through the needle which itself is attached to a catheter which is inserted under the sleeve.

The adhesive is spread away from the injection point with the aid of a rubber squeegy. Progressively add more adhesive and spread it evenly over the whole surface of the roll using the rubber squeegy. Do not use more adhesive than is necessary since the thinnest of adhesive films gives the best performance.

As the adhesive is pushed along the roll under the cover, it is probable that air will become entrapped. Such air must be pushed out of the cover towards the ends of the roller otherwise not only will it prevent bonding at that point but when the roller is heated in operation, the air will expand and cause appreciable bumps on the surface of the cover.

Care and skill are required to leave the surface of the cover without ripples or undulations. Reflected light along the surface shows up uneven surfaces. Swift work is required to avoid the adhesive setting before the required surface finish is achieved. Finally the ends of the cover should be shrunk down, excess adhesive being worked out by squeegy .

G. TRIMMING

Holscot Roller Covers should be trimmed at each end after shrinkage is complete. A sharp knife will suffice. There are advantages of leaving a cuff (necked down portion) of the cover past each roller shoulder. This excess helps to anchor the cover and reduces the possibility of liquids getting between the roll and the cover.

Keep the ends neat and free from nicks as these may develop into tears during roller use.

In the case of bonded rollers the ends should be taped down to eliminate ingress of air while the adhesive is curing.

H. ADHESIVE CURING

The recommended curing time for the adhesive will be shown on the adhesive instructions. Heat may be required to cure the adhesive quicker if time is limited. Constant turning of the roller is advised if high temperature adhesives are used to avoid the possibility of the adhesive slumping to the bottom and causing an eccentric outer surface.

I. REMOVAL

If a Holscot Roller Cover becomes damaged or for other reasons must be removed, it may be cut at one end and peeled off in a diagonal fashion.

J. STORAGE

Keep Holscot Roll Covers below 30 degrees C prior to installation to avoid the possibility of premature shrink back. This is of particular importance for PFA sleeves.

Covers are available for diameters from 1" and lengths up to 25ft. Each cover will shrink to approximately 25% in diameter upon the application of 100 degrees C or above.

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