

# How to Apply GF Tube

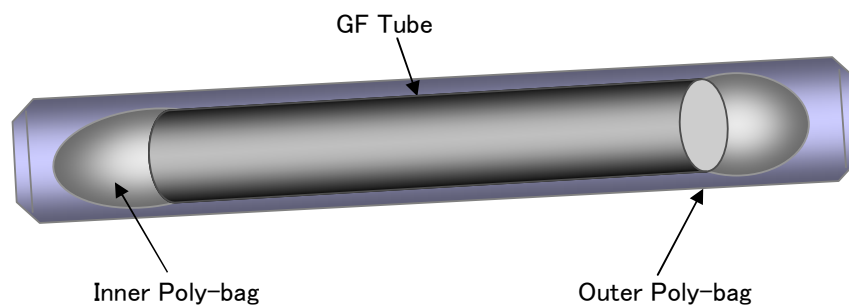
**GUNZE LIMITED**  
**Engineering Plastic Division**

## 1. Cleaning of Roller

- \* Be sure to clean out dirt and foreign particles, etc. from the surface and the edge of your Roller.
- If there is bumpy, its mark may remain on the surface of Roller after Tube shrinkage.

## 2. Handling of GF Tube

- \* When paper tube for export is opened, GF tube is packed as picture below.



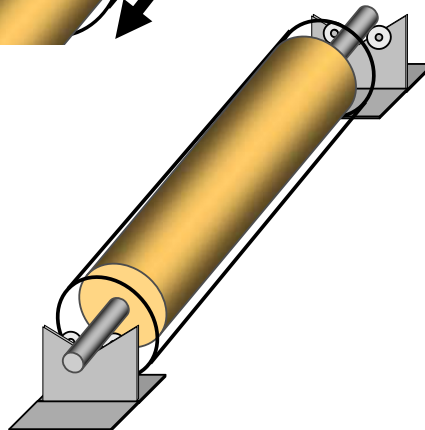
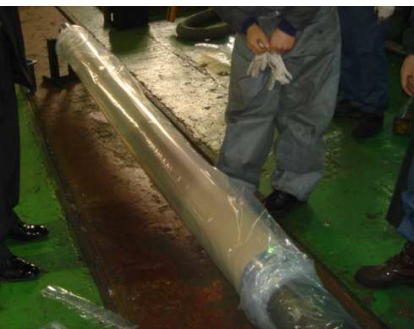
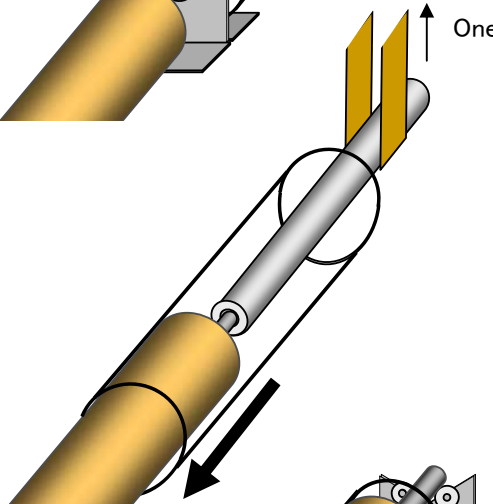
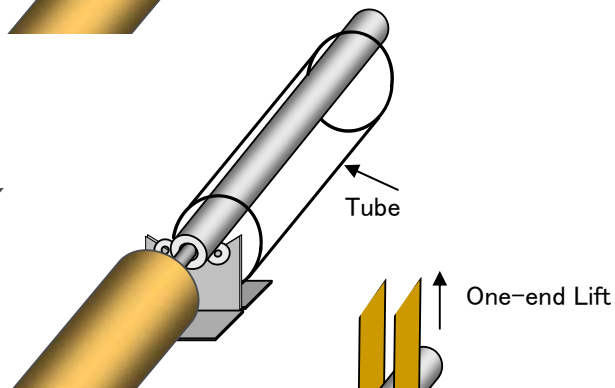
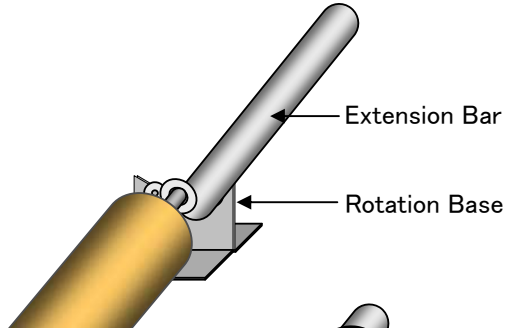
- \* When carrying Tube or when applying Tube onto Roller, hang up Tube at Outer Poly-bag, not to push up Tube from bottom, in order to prevent Crease.



### 3. Attaching GF Tube

#### Tube Application

- \* In case Roller is short, for example by 1m, stand Roller and apply Tube from upper side, then put it on Rotation Base.
- \* In case Roller is long and heavy, One-end Lift is necessary by using Extension Bar.  
(How to use Extension Bar)



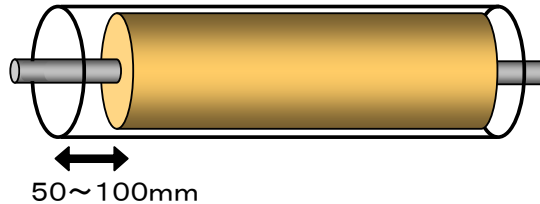
### Shrinkage Operation

\* Put Roller around which Tube is applied on Lathe or Rotation Base.

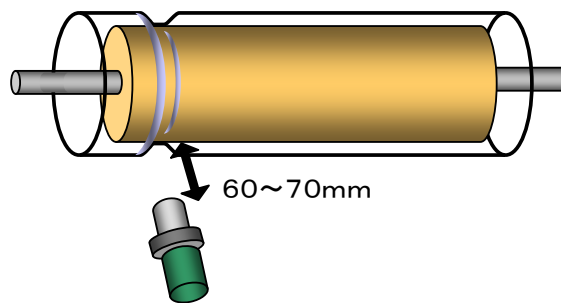
Slowly shrink Tube from one-end by Heat Supply of about 150–180 degrees C, while Roller is rotated. (Refer to Standard Operation below.)

~Standard Operation~

- (1) Confirm that Tube is longer than Roller by 50–100mm at both ends.



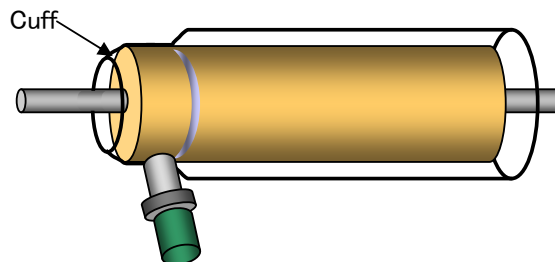
- (2) While Roller is rotated at the speed of about 60 rpm, shrink the part of 40–50mm from Roller Edge, and then Tube is fixed. During this operation, keep the gap of about 60–70mm between Tube and Heat Supply.



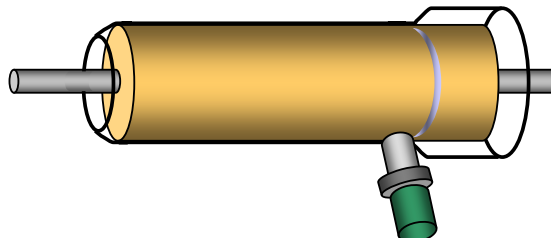
- (3) After Cuff is created at one edge of Roller, proceed Heat Supply to the opposite direction (Unshrunk Area).

Pay attention to direct Blow Exit toward opposite to Movement Direction.

If Blow Exit is directed toward Movement Direction, skip-shrinkage may occur, which cause Wrinkle or Air Bubble.



- (4) Successively rotate Roller at constant speed, and proceed Blow Exit slowly while checking the boarder between shrunk and unshrunk area.

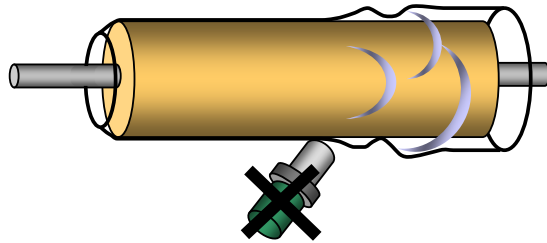


- (5) After shrinkage at the opposite end of Roller, create Cuff like the start.  
(6) Cut off both ends of Tube neatly upon necessity while paying attention not to create damage on the edge side of Tube.  
Crack may be created from the damaged area.

### -Caution on Shrinkage Operation-

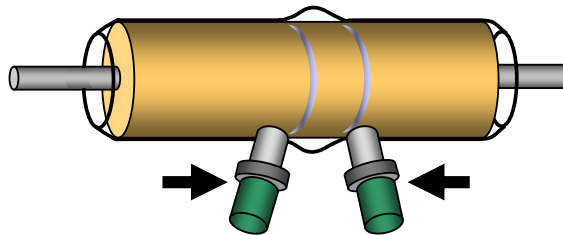
- (1) If Blow Exit is aheaded to Tube's shrinkage direction, heat blow may be skipped to unshrunk area.

Be sure to ahead Blow Exit to opposite side from unshrunk area, that is, shrunk area.



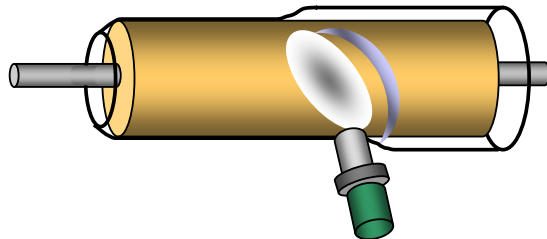
- (2) Be sure to advance heat supply from one-end.

In case of shrinkage from both ends, no air-pass is provided at the center, which may cause crease.



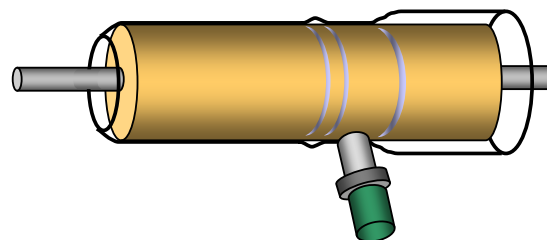
- (3) Rotate Roller or Heat Supply evenly, and proceed over Tube at constant speed.

Biased shrinkage by partial overheating on Tube may cause wrinkle at the distorted area.



- (4) If the operation is resumed after a break for a certain time, proceed from the point a little back from the boarder between shrunk and unshrunk area.

If the operation is resumed from the boarder, ring mark may be remained there.



- (5) Especially in winter, in case Tube is shrunk to Metal Roller, sometimes shrinkage is not enough even though Tube looks like attaching to Roller perfectly.

Tube itself is cooled on the surface of Metal.

If operation is proceeded in such condition, unsticked areas are sometimes spotted in the stucked area.

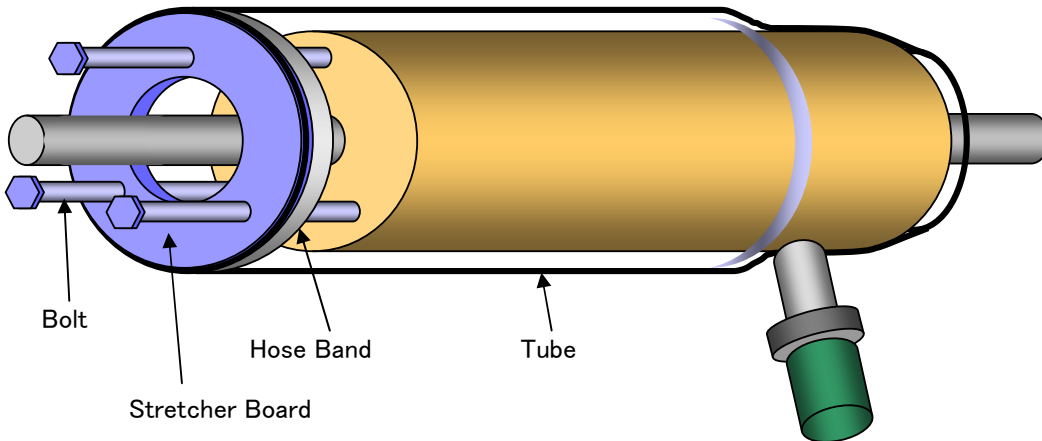
In cold season, move Heat Supply carefully.

- (6) Dirt or foreign particles on the side or axis of Roller may cause their insertion between Tube and Roller during operation.

Action such as to attach tape is required.

~Re: Using Stretcher~

(1) Set Bolt to Stretcher Board in advance. (See below.)



- (2) Shrink Tube opposite to Stretcher by about 10cm.
- (3) Attach Stretcher Board at the edge of Roller.
- (4) Pinch Tube between Stretcher Board and Hose Band, and then tighten it firmly.
- (5) By fastening Bolts with even tension, Tube can be strained.  
Pay attention not to fasten Bolt too tightly.  
Otherwise Tube is pulled, which may cause shortage of Tube.
- (6) While shrinkage operation is proceeded, Tube tension will be less.  
In such a case, fasten up Bolts to keep tension of Tube.