Roll handling and storage

William B. Kennedy

When handling covered rolls, one should take great care to avoid damage from bumping, knocking, or scuffing any part of the roll. Never touch the cover with ropes or cables, particularly on the edges where chipping and cracking might occur.

Rolls must be lifted by their journals when removed from the shipping container. When a roll is first received at the mill, it should be inspected right away to assure that it is in good condition and ready for installation.

Guidelines for roll inspections

Roll inspection should include the following checks:

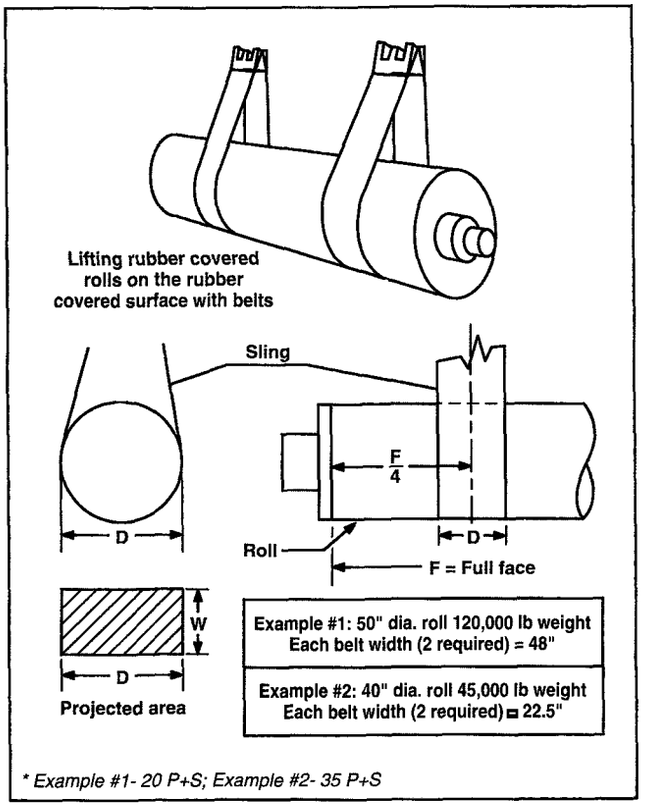
- Look for obvious signs of damage to the container, the roll, or both.
- Measure the Pusey and Jones (P&J) cover hardness.
- Measure the crown and edge relief.
- Check drilled holes or grooves (if any) for uniformity and clean edges.
- Observe the cover surface appearance to see that it conforms to requirements.

Rolls should be stored in a cool, dark area away from a work or high traffic location where they could be accidentally damaged. Rolls should be stored in their shipping boxes whenever possible. Use the cover wrapping material supplied by the cover manufacturer for additional protection.

Avoid exposure to the following conditions:

- High ozone concentration from direct sunlight, electrical motors or generators, and electrical switching devices.
- Oil, grease, kerosene, solvents or chemicals. These substances can cause swelling and softening if allowed to remain on the roll covering.
- Extreme heat or cold from high-pressure steam lines or temperatures below 40°F. Cold weather storage or shipping requires heated rooms or trailers to avoid freezing. Freezing can cause cracking of the hard base and cover.
- Extreme humidity variations
- Extended storage on bearing housings. The bearings can distort from the weight of the roll.
- Pressure on the cover from resting directly on the floor without a resilient cradle.

1. Cushioned sling for lifting rolls



** Example #1- 20 P+S; Example #2- 35 P+S*

Roll support

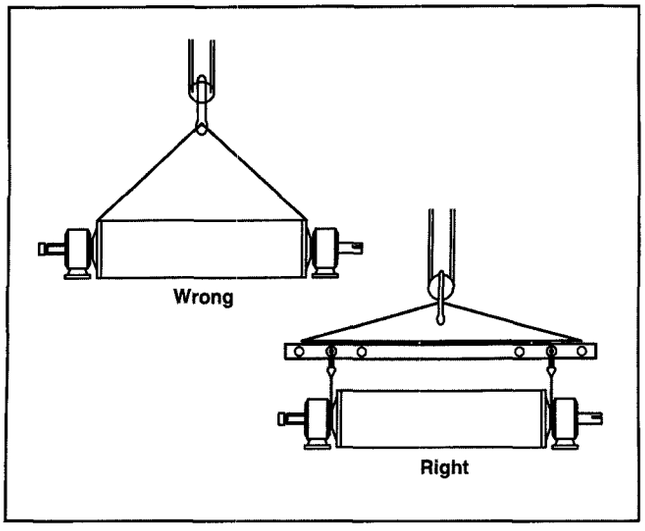
When installing the roll in the machine, it may be necessary to support or lift the roll on the surface of the cover. A wide, clean, cushioned sling or belt must be used. The sling should be one of these types:

- Nylon webbing
- Rubber-covered, fabric reinforced
- Rubber-covered, steel reinforced.

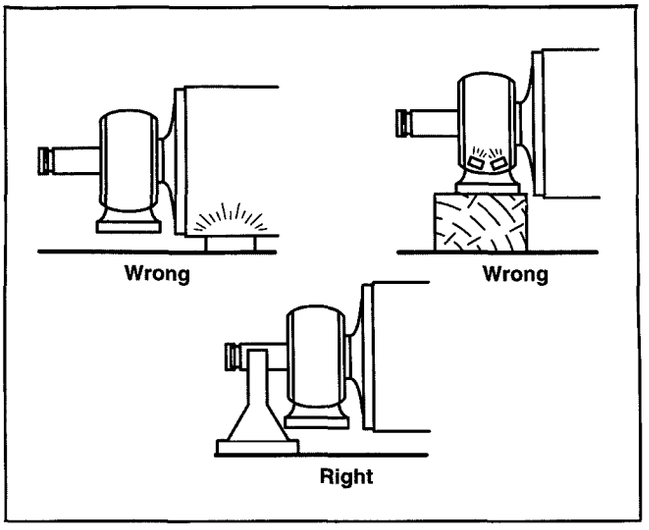
The width of the sling is determined by roll weight, roll

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2. Single hook lifting using a spreader



3. Correct and incorrect methods for supporting rolls



diameter, and cover hardness. Use the following equation to find the minimum belt width:

$$\text{Minimum Width} = \frac{\text{1/2 roll weight}}{\text{(Max PSI) (Roll Diameter)}}$$

Maximum PSI is determined by the cover hardness. For cover hardnesses in the range 0–40 P&J, maximum PSI is 25; for the range 40-100 P&J, maximum PSI is 17; and for the range 100–200 P&J, maximum PSI is 10.

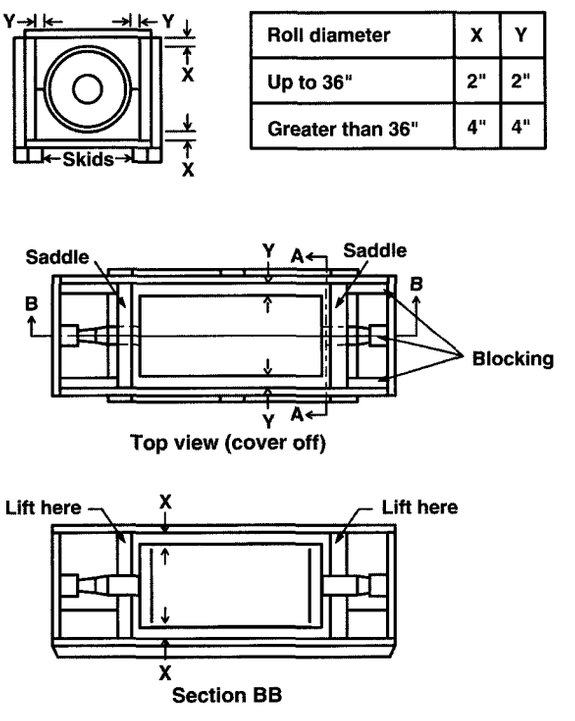
The belt surface that is in direct contact with the cover must be clean and smooth, otherwise it could cause abrasions or tears in the cover due to stretching of the belt.

Do not place the sling on the edge of a cover, because this area is easily damaged. Space the slings at or near the quarter points to ensure equal distribution of the roll weight on each belt, as illustrated in **Fig. 1.**

When using ropes or cables to lift the roll, use a spreader on the hoist hook to allow each cable to lift vertically. **Figure 2** shows the right and wrong way to lift the roll. Place the roll on its journals to store. Do not rest the full weight of the roll on the cover or the bearing housings. **Figure 3** provides additional illustrations of correct and incorrect methods.

Always allow the roll to reach room temperature gradually before installation and operation. This may take 24 hours or more, depending on the temperature of the storage area.

4. Shipping box construction



Special shipping precautions

Handling of rolls during shipment is best done using a sturdy box. The shipping box should be constructed so that it has sufficient strength for support and is large enough to enclose the roll and its new covering completely. **Figure 4** provides a cross section of a roll shipping box.

For rolls up to 36 in. in diameter (including cover), provide a minimum clearance of 2 in. all the way around. For rolls greater than 36 in. in diameter, provide at least 4 in. of clearance all the way around.

Make sure that no movement of the roll will take place during shipping and that there are no nails, screws, or other projections which could damage the roll covering should the box or roll core flex during shipment or handling. Boxes should be clearly marked to show the proper lifting points.

By observing these basic requirements for roll handling and storage, the useful life of a cover roll can be extended to its maximum. Careless handling and storage of rolls most often results in more frequent damage and a much reduced service life. □