Step-by-Step: Size Conversion Procedure for Diameter and Height

IMDPA
International Metal Decorating and Packaging Association

As the demand for different size beverage containers continues to evolve, it is now common for most can makers to conduct size conversion on many production lines. Size conversions may consist of just can length or different can diameters. Below is the recommended Stolle Concord Decorator Size conversion procedure for Diameter and height conversions. This procedure is to be used with pivoting mandrels and quick-change features. Greater detail for many of these adjustments can be found in the Installation, Operation, and Maintenance Manual..

Procedure for pivoting mandrels and quick-change features

By Andy Laden – Senior Product Director Concord Decorators, Basecoaters, Embossers and Profilers, Stolle Machinery Co, LLC

Step 1 – Before beginning this procedure, Lock-out, Tag-out, and Try to ensure the machine is at a zero-energy state.

Refer to the Installation, Operation, and Maintenance Manual for proper safety procedures.

Step 2 – Remove all parts for the current can size.

1. Remove the quick-change pocket segments.
2. Remove all mandrel assemblies.
3. Remove the infeed chute assembly.
4. Remove the applicator roll tire or sleeve.

Step 3 – Set the mandrel to blanket pressure and check the cam tracking.

Figure 1

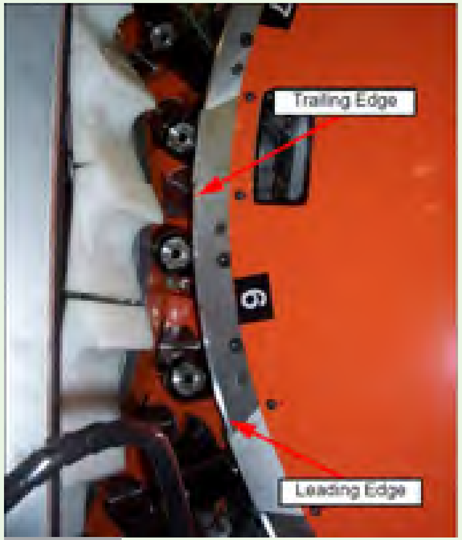

Figure 2

1. Inspect and adjust the mandrel circle using the #1 mandrel set up block to ensure you have a good reference to set and verify the remaining assemblies. **(Fig. 1)**
2. Install the mandrel set-up tool on the #1 mandrel station.
3. Rotate the machine until mandrel #1 is lined up with the center of blanket segment #1.
4. Ensure mandrel #1 is in the print position.
5. Measure the gap between the mandrel setup tool and the bare blanket segment.
6. Adjust the print pressure until the gap between the mandrel set-up tool and the blanket is .068 inches [1.72 mm]
    a. The actual gap needed will depend on materials used and operating speed of the decorator. Typical gaps are between .070 to .062 inches [1.78 to 1.58 mm]. It is recommended to use the largest gap possible that still will produce a quality can. This helps promote machine longevity and reduces wear and tear on the decorator.

    b. Check the toe-in. The gap should be the same along the full-length of the mandrel setup tool. There should be no toe-in.
7. Rotate the machine until the mandrel set-up tool is lined up with the beginning of blanket segment #1 just after the lead in taper. (The leading edge)
    a. Measure the gap between the mandrel tool and the segment then record it.
8. Rotate the machine until the mandrel tool is lined up with the end of the blanket #1 about ½ inch [13 mm] before the trail end of the segment. **(Figure 2).**

   a. Measure the gap between the mandrel tool and the segment then record it.

9. The lead gap at the beginning of the segment should be slightly larger than the trail gap. This distance should be .0005 to .0010 inches [.013 to .025 mm] larger. If this is not the case, then the mandrel cam will need to be adjusted.

Step 4 – Install and adjust the parts for the new can size

1. Install the quick-change pocket assembly for the new can size.
   a. If these pockets have not been used before, verify the setting to the mandrel shafts with the correct pocket alignment tool. **(Figure 3)**

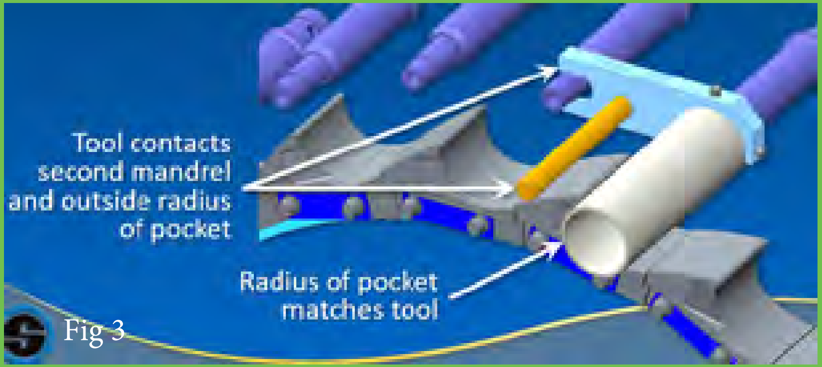

Fig 3

2. Install the mandrel sleeves for the new size and secure them with the mandrel nut assembly. Torque to 50 ft lbs [68 N m].
   a. Depending on your specific mandrel design, a different rear spacer may be required for the new can size. Refer to the mandrel assembly drawing in your drawing package to determine if this is required.
3. Install the correct infeed for the new can diameter.

Figure 4

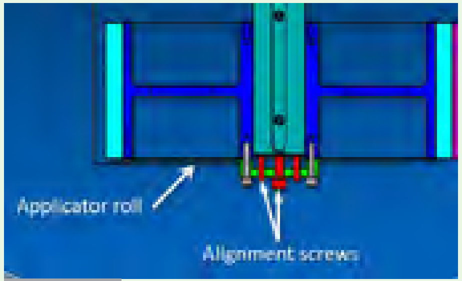

Figure 5

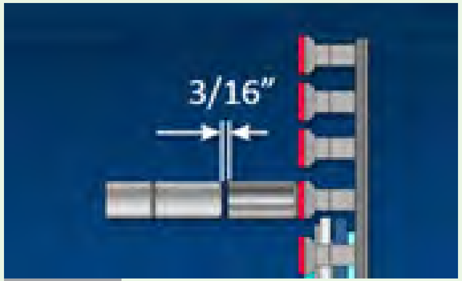

Figure 6

   a. Depending on your specific infeed design, a different infeed spacer may be required for the new can size. This spacer is located between the infeed support tube and the infeed mounting plate. Refer to the infeed assembly drawings in your drawing package to determine if this is required.

   b. Adjust the width of the infeed to match the length of the new can height by disengaging the 4 pins and slide the infeed to the proper width and engage the pins in the locating holes. (Figure 4)

   c. Adjust the infeed so the infeed guide is aligned with the radius of the infeed pocket.

   d. Install the proper air plenum (if required) to match the width of the infeed.

4. Install and set the applicator roll for the new can size.

   a. Adjust the mounting cap of the applicator roll to have the roll just overlap the top of a can installed on the mandrel. (Figure 5)

   b. Ensure mandrels are sent in the print position and adjust the applicator roll to mandrel pressure until there is a 5/16" (8mm) minimum width stripe on the can when the roll is engaged.

Step 5 – Set the disk transfer and pin chain assemblies.

1. Place a can on the disk transfer and adjust the disk until there is a 3/16 inch [3 mm] gap between the cut edge of the can and the end of the mandrel. (Figure 6)

2. Adjust the height of the sprocket on the pin chain stand to have a 7/8 inch [22 mm] to 1" (25.4mm) wide gap between the pin chain tip and the suction

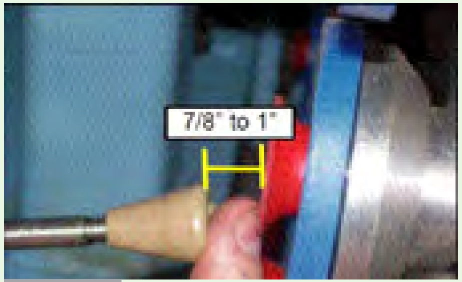

Figure 7

Figure 8

Visit us on LinkedIn for regular Tech Tip posts:

Visit us on Facebook

cup at the transfer point. (Figure 7) Adjust the vacuum timing plug in the transfer manifold so the vacuum turns off 1 to 2 inches [25 to 50 mm] above the transfer point. (Figure 8)

3. Adjust the pin chain timing to line up with the suction cups in the disk transfer.

Step 6 – Final adjustments.

1. Adjust the Overvarnish overlap settings to have the proper Overvarnish overlap for the new can diameter.
    a. On new machines it is only necessary to enter the new can diameter to make this adjustment on the varnish screen on the HMI panel.

Stolle Concord Decorators are made with simple size changes in mind. Recording settings for each different size can further reduce time. Saving the disk transfer position shown on the readout, Marking the casting with the sprocket location and also the location of the transfer manifold will allow you to quickly return to the same settings each time you convert. Of course there are many other items that must be converted within the production line. Once the decorator is converted, decorator team members can help support the rest of the team. Develop a checklist specific to for each different size conversion that is done on each production line. This will help bring all machines back into production quickly and back to expected operating efficiency. **[FM]**