

De-core Time Study Final

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Summary:

Test Details:

1. 0.053" ID Tubing:

- **Manual Method:** Workers wrapped the post 5 times, stretched the tubing, and bundled it.
- **Results:** 4 bundles of 10 pieces each were produced in **13 minutes**.
- **Cylinder Stretcher:** Workers doubled the number of wraps to 10 times around the post before stretching, allowing them to produce more bundles in one go.
- **Results:** 8 bundles of 10 pieces each were produced in **18 minutes**.

2. 0.0129" ID Tubing:

- **Manual Method:** Workers wrapped the post 27 times, stretched the tubing, and bundled it.

- **Results:** 4 bundles of 54 pieces each (108 wraps total) were produced in **17 minutes**.
- **Cylinder Stretcher:** Workers tripled the number of wraps to 81 times around the post, allowing them to stretch and produce significantly more bundles in one go.
- **Results:** 12 bundles of 54 pieces each (324 wraps total) were produced in **34 minutes**.

Table of Results:

Tubing ID	Method	Wraps per Bundle	Total Wraps	Bundles Created	Total Time	Time per Bundle
0.053"	Manual	5	20	4	13 minutes	3.25 minutes
0.053"	Cylinder Stretcher	5	40	8	18 minutes	2.25 minutes
0.0129"	Manual	27	108	4	17 minutes	4.25 minutes
0.0129"	Cylinder Stretcher	27	324	12	34 minutes	2.83 minutes

Improvement Analysis:

- **0.053" ID Tubing:**
 - **Manual Method:** 4 bundles in 13 minutes = 3.25 minutes per bundle.
 - **Cylinder Stretcher:** 8 bundles in 18 minutes = 2.25 minutes per bundle.
 - **Improvement:** The rate of decoring improved by **30.8%**.
- **0.0129" ID Tubing:**
 - **Manual Method:** 4 bundles in 17 minutes = 4.25 minutes per bundle.
 - **Cylinder Stretcher:** 12 bundles in 34 minutes = 2.83 minutes per bundle.
 - **Improvement:** The rate of decoring improved by **33.4%**.

Impact of the Flushing Station:

Our current flushing station has only 6 manifolds and an older peristaltic pump. This limitation means that while the cylinder stretcher allows you to process more bundles in less time, you may encounter bottlenecks during the flushing process. For instance:

- **0.053" ID Tubing:** When creating 8 bundles in 18 minutes, only 6 can be flushed immediately. The last 2 bundles must wait, potentially reducing some of the time savings achieved by the cylinder stretcher.
- **0.0129" ID Tubing:** Similarly, when creating 12 bundles in 34 minutes, only 6 can be flushed right away, causing the remaining 6 to wait.

Future Consideration:

To fully capitalize on the efficiency gains from the cylinder stretcher, it may be worth exploring an upgrade to the flushing station:

- **Increasing the number of manifolds** could allow you to flush more bundles at once, matching the increased output of the cylinder stretcher.
- **Upgrading the pump** to a more efficient model could reduce the flushing time per bundle, further enhancing overall process efficiency.

By addressing these potential bottlenecks, you can maximize the benefits of the improved decoring rate and achieve even greater productivity in your process.

