Honda – Dynaflo Key Learnings

April 2020

#StopTheSpread

Honda

Dynaflo

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Overview of this deck

• This deck covers key lessons from the Honda – Dynaflo partnership, which was created to prevent a shortage of compressors, a critical component of ventilators, during the COVID-19 pandemic.

• The following slides include:
  – Summary of the situation
  – Main challenges
  – Guiding principles of success
  – Supply chain Best Demonstrated Practices
  – Results and long-term benefits
Honda and Dynaflo successfully partnered to scale production of compressors, ensuring ventilators get to hospitals on time

**Situation overview**

- Dynaflo Inc. produces diaphragm vacuum compressors, a critical and specialized ventilator component, for a major ventilator OEM
- Dynaflo typically produces ~75 compressors a week, but their OEM customer needed 2,500 a week to hit COVID-19 production targets
- They reached out to Stop the Spread (STS) to identify a partner to scale production; STS connected them with Honda
- Thanks to Honda’s expertise in mass production of complex parts, production is on track to reach 10,000 compressors per month

**Partnership rationale**

**Capabilities**
- Deep manufacturing knowledge
- Available manufacturing space

**Challenges**
- Lack of medical device expertise

**Capabilities**
- FDA approved component
- Experience producing medical devices

**Challenges**
- Limited production capability
- Need to secure supply chain
Together, they had to overcome numerous challenges that compounded the difficulty of scaling production.

**COVID-19 restrictions**
- Personnel working remotely
- Limited ability to travel

**Scaling production**
- ~30x production increase from pre-COVID levels
- Complexity of compressors (+300 parts)

**Time-sensitive**
- Tight timeline to meet OEM requirements

**Ensuring quality**
- Need to meet highest quality threshold

**New collaboration**
- Massive difference in company scale (15 vs +200,000 employees)
Success was a result of focused work, hand-in-hand collaboration, and the replication of existing processes.

**Enablers of success**

- **Agility**
  “Normally, this would require 6 months. We made it work in a few weeks.”

- **At-cause mindset**
  “Whenever you needed help, folks would clear their schedule.”

- **Process replication**
  “Dynaflo perfected a process. At Honda, we were focused on scaling it.”

- **Embedded staff**
  “We sent Dynaflo employees to the Honda facility. It was critical to share everything we knew.”

- **Constant communication**
  “As project leaders, we exchanged texts and calls multiple times a day.”

Source: SOP = Standard Operating Procedure

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Dynaflo ensured it could successfully scale production with Honda by securing its supply chain

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Solutions</th>
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<tbody>
<tr>
<td>• Managing ongoing disruptions to supplier network due to COVID-19</td>
<td>• Increased output from existing suppliers with idle manufacturing capacity</td>
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<tr>
<td>• Locking in additional components for increased production</td>
<td>• Engaged additional suppliers to create redundancies</td>
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<tr>
<td>• Redirecting supply chain to provide components to both Dynaflo and Honda facilities</td>
<td>• Addressed both critical components and commodity items to avoid bottlenecks</td>
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<td>• Purchased additional tooling to prevent production issues</td>
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The partnership has created impactful results during COVID-19 crisis; experiential learnings will drive long-term benefits for stakeholders

Meaningful near-term value
• By producing compressors, Honda and Dynaflo supported a major OEM as they ramped up production of critical care ventilators
• By scaling production from 75 ventilators a week to 2,500, the partners are on track to achieve a 33x increase in output

Impactful long-term experiential learnings
• Honda experienced being a supplier first-hand, which will allow the company to improve its relationships with its own suppliers
• Dynaflo worked with a contract manufacturer for the first time, enabling the firm to quickly scale in the future
Special thanks to Honda and Dynaflo for sharing their learnings and inspiring story!

Please reach out to Stop The Spread if we can help your team think through ongoing COVID-19 initiatives