Market Update:

Chinese Buttons
Fact verses Friction
Chinese Button Evaluation

- **Objective**
  - Provide meaningful performance data on Chinese & VelveTouch buttons.

- **Test Samples**
  - VelveTouch Carbotic & Ceramic buttons.
  - Chinese buttons from three of the primary exports. Parts labeled as China-1, China-2 & China-W.

- **Evaluation Process**
  - Run full scale OE dynamometer test (R-69-280).
  - Replicate class 7 & 8 truck platform with VSR 23 buttons.
  - All button samples riveted to identical carrier plate and hub assemblies.
  - All buttons run against identical opposing plates.
Lower Friction Levels Increase Risk of Clutch Slippage

- VT Carbotic Up to 42% Higher Friction Levels.
- VT Ceramic Up to 53% Higher Friction Levels.
Wellman Clutch Procedure R-69-280 (40,000 ft-lb)

Friction Wear

Lower Friction Wear = Longer Life & Reduced Maintenance Costs

- VT Carbotic Up to 206% Longer Life.
- VT Ceramic Up to 130% Longer Life.
Wellman Clutch Procedure R-69-280 (40,000 ft-lb)
Pressure Plate & Flywheel Wear

Lower Iron Wear = Longer Life & Reduced Maintenance Costs
- VT Carbotic Up to 146% Longer Life.
- VT Ceramic Up to 113% Longer Life.
Summary

<table>
<thead>
<tr>
<th>Category</th>
<th>Chinese Buttons</th>
<th>VelveTouch Buttons</th>
<th>Advantage</th>
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</thead>
<tbody>
<tr>
<td><strong>Coefficient of Friction</strong></td>
<td>Low friction levels increase potential for clutch slippage &amp; poor engagement. Performance well below OE standards.</td>
<td>Up to 53% higher friction levels. Friction profile similar to OE which ensures proper clutch performance.</td>
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<tr>
<td>Friction &amp; Pressure Plate Wear</td>
<td>High wear rate increases annual maintenance costs and equipment downtime.</td>
<td>Extremely low wear rate minimizes annual costs and increases customer satisfaction.</td>
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<tr>
<td>Quality Control</td>
<td>Exporters repackage sourced product from a wide array of small manufacturers. Process controls and consistent performance are at risk.</td>
<td>All VelveTouch buttons are manufactured on the same production lines as OE. All facilities are TS certified. Guaranteed OE level form, fit and function.</td>
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<tr>
<td>Design</td>
<td><strong>Will fit:</strong> reverse engineered design. Critical dimensions and flatness tolerances do not meet OE level standards.</td>
<td><strong>Will Work:</strong> Product engineered by the same group that develops OE products. Proper design &amp; fitment ensures quality performance and reduced downtime.</td>
<td></td>
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<tr>
<td>Customer Satisfaction</td>
<td><strong>High Risk</strong></td>
<td><strong>Low Risk</strong></td>
<td></td>
</tr>
</tbody>
</table>
Additional Competitive Data:

USA Competitor’s Clutch Buttons
Fact verses Friction
USA Market Button Evaluation

- **Objective**
  - Provide meaningful performance data on lead aftermarket competitors & VelveTouch buttons.

- **Test Samples**
  - VelveTouch Carbotic & Ceramic buttons.
  - Leading US aftermarket competitor buttons.

- **Evaluation Process**
  - *Run full scale OE dynamometer test (R-69-280).*
  - *Replicate class 7 & 8 truck platform with VSR 23 buttons.*
  - *All button samples riveted to identical carrier plate and hub assemblies.*
  - *All buttons run against identical opposing plates.*
WPG Clutch Procedure R-69-280 (40,000 ft-lb)
Comparison of Velvetouch and Competitive Clutch Materials

Test Data

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Wellman Clutch Procedure R-69-280 (40,000 ft-lb)
Pressure Plate & Flywheel Wear

Mils Wear

- Competitor 1
- Competitor 2
- VT Ceramic
- VT Carbotic

Lower Iron Wear = Longer Life & Reduced Maintenance Costs
- VT Carbotic Up to 146% Longer Life.
- VT Ceramic Up to 113% Longer Life.
Avoid Counterfeit Parts!!
Inspect your rebuilt clutches and verify that only quality VelveTouch buttons have been installed.

Do You Know What’s In Your Clutch?

VelveTouch part number & production date code.

VelveTouch brand name & “Made in USA” production location.
Wellman Products Group is the #1 metallic friction supplier to the heavy-duty & performance clutch markets.

OEM
On-Highway Truck
Motorsports
Off-Highway Equipment: Military, Agriculture & Construction

What’s In Your Clutch?