CONTROLED STRUCTURE HYBRID BOND WHEELS

Our innovative Dualforce™ technology is a controlled structure process for manufacturing hybrid bond wheels that creates space between the abrasive particles, resulting in a freer cutting wheel that withstands cutting forces from high-speed applications.

**BENEFITS:**
- Faster grinding for continuous production.
- Significantly reduced dressing.
- Drastically reduced cycle times.
- Material removal rates up to 1,500 microns/min (0.05905”).

**FEATURES:**
- Holds flatness to 1 micron (0.00004”).
- Ideal for carbide and ceramic inserts.
- Compatible with double disc grinding machines including Stahli, Lapmaster and Peter Wolters.
- Custom configurations.
**CERAMIC INSERTS**

*Grades:* Various (All Grades Ceramic & Silicon)
*Parts per load:* 48-64 (Depending on Size)
*Case Study Focus:* Reduce Cost Per Part

<table>
<thead>
<tr>
<th>Product</th>
<th>Down Force</th>
<th>Grind Cycle Time Per Load</th>
<th>Dress Frequency</th>
<th>Grind Cost Per Part</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitor Wheel</td>
<td>1000-3000 LBS</td>
<td>20-40 MINUTES</td>
<td>EVERY 5 LOADS</td>
<td>$2.00</td>
</tr>
<tr>
<td>Dual Force</td>
<td>500-900 LBS</td>
<td>2-3 MINUTES</td>
<td>1 LOAD PER DAY (150 LOADS)</td>
<td>$0.02</td>
</tr>
</tbody>
</table>

**CERAMIC PARTS**

*Grades:* Various (All Grades Ceramic & Silicon)
*Parts per load:* 72
*Case Study Focus:* Drastically Reduce Dressing

**CARBIDE MILLING INSERTS**

*Grades:* All carbide varieties
*Parts per load:* 120-200 (Depending on Size)
*Total inserts per set of wheels:* 1,000,000
*Case Study Focus:* Reduce Dressing and Cycle Time

<table>
<thead>
<tr>
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<th>Grind Cycle Time Per Load</th>
<th>Dress Frequency</th>
<th>Grind Cost Per Part</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitor Wheel</td>
<td>300-500 LBS</td>
<td>3-4 MINUTES</td>
<td>2-3 TIMES PER DAY</td>
<td>$0.05</td>
</tr>
<tr>
<td>Dual Force</td>
<td>300-500 LBS</td>
<td>2-3 MINUTES</td>
<td>1 TIME PER DAY</td>
<td>$0.01</td>
</tr>
</tbody>
</table>

**Performance Optimization**

*All performance case studies performed on Stahli 705 machines*