A Rotary Die and Diecutting Innovation

Container Graphics’ MicroTrim™

Benefits the Corrugated Converter & Mother Earth

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Savings

$ 11000

$ Savings $
Container Graphics’ MicroTrim ™

- Runs Faster
Container Graphics’ MicroTrim™

- Runs Faster
- Stripping is Dramatically Improved
Container Graphics’ MicroTrim™

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- Reduced Trim and Internal Scrap in Load
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Container Graphics’ MicroTrim™

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- **Enhances Total Die Performance**
Container Graphics’ MicroTrim™

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- Paper Cost Savings (Trim to 1/8” or less)
- Enhances Total Die Performance
- Reduced Impression
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• Paper Cost Savings (Trim to 1/8” or less)
• Enhances Total Die Performance
• **Reduced Impression**
• **Improved Blanket Life**
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- **Sustainability**
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Lead Edge Trim
The Problem: Trim Build-Up

A Conventional Rotary Die
Background

A Conventional Rotary Die
Trim Build-Up
What happens?

A Conventional Rotary Die
Trim Build-Up
What really happens.

A Conventional Rotary Die
Trim Build-Up
The plot thickens.

A Conventional Rotary Die
Trim Build-Up
Bad becomes worse.

A Conventional Rotary Die
Trim Build-Up
The consequences.

A Conventional Rotary Die
Anvil Deflection Affects Cut Ability

The problem: Trim buildup.

Operator Adds rubber.

A Conventional Rotary Die
Conventional Die Trim Issues Lead to:

- Broken Dieboard Bridges
- Broken or Bent Cutting Rule
- Trim Rubber Torn Off of Die

$$$$ Die Repair or Die Replacement $$$$
Background

A Conventional Rotary Die

Lead Edge Trim Buildup
Background

A Conventional Rotary Die

Broken Dieboard Bridges / Bent Cutting Rule
Background

A Conventional Rotary Die

Excessive Rubber Added
Background

A Conventional Rotary Die

Similar Issues Exist with Trail Edge Trim and Side Trim

Conventional Rubber Deflects with Small Trim

A Conventional Rotary Die
# Conventional Rotary Die

<table>
<thead>
<tr>
<th>Corrugated Board</th>
<th>Minimum Trim Allowance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Wall</td>
<td>3/8”</td>
</tr>
<tr>
<td>Double Wall</td>
<td>1/2”</td>
</tr>
</tbody>
</table>
The Rotary Die and Diecutting Innovation

Benefits the Corrugated Converter & Mother Earth

Container Graphics’ MicroTrim™
Innovation Construction and Features

General Concept

Innovation: Retraint and Dense Urethane are Key To Cutting and Strippping
Innovation Construction and Features

General Concept

View Looking into Diecutter Exit
Innovation Construction and Features

Score Rule Placed Parallel to Trim Cutting Rule
Innovation Construction and Features

*L-Shaped Trim Breakers*

- L-Shaped Trim Breaker
- Trim Cutting Rule
- Score Rule
- For Quality Assurance
Innovation Construction and Features

Dense Urethane Foam added between Trim Cutting Rule & Score Rule

Score Rule acts as a Restraint to keep Dense Urethane Foam from Deflecting Away from Trim Cutting Rule
Innovation Construction and Features

Surface Restraint at Dieboard Join Line

Eliminates Additional Bridges at Join Line that Might Weaken the Dieboard
Innovation Construction and Features

Trim Rubber Completely Surrounds Trim Breakers

Eliminates Issues during Press Setup
Innovation Construction and Features

Rule Support Buttresses on Lead Edge

Prevents Deflection of Lead Edge Knife
Innovation Construction and Features

Rule Support on Lead Edge

Lead Edge Knife

Trim Breaker

Rule Support Buttress

Lead Edge Rule Support

Prevents Deflection of Lead Edge Knife
Innovation Construction and Features

Lead Edge Impact Ramp

Reduces Lead Edge Impact Forces
MicroTrim’s Construction and Features

- Score Rule with Urethane Parallel and Tight to Trim Cutting Rule
- Surface Restraint at Dieboard Join Line
- L-Shaped Trim Breakers
- Full Rubber Surrounding Trim Breakers
- Rule Support Buttresses on Lead Edge
- Lead Edge Impact Ramp
A Rotary Die and Diecutting Innovation

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A Rotary Die and Diecutting Innovation

Runs Faster

• Up to 30% Speed Increase has been Realized

• Speed capability usually limited by Diecutter Maximum Speed or other Equipment Limitations

$11,000

Savings
A Rotary Die and Diecutting Innovation

Reduced Trim and Internal Scrap in Load
A Rotary Die and Diecutting Innovation

CGC’s MicroTrim On Press
A Rotary Die and Diecutting Innovation

Helps Reduce Lead Edge Issues

Container Graphics’ MicroTrim™
A Rotary Die and Diecutting Innovation

Paper Cost Savings (Trim to 1/8” or less)
A Rotary Die and Diecutting Innovation

Reduced Impression
A Rotary Die and Diecutting Innovation
Reduced Impression / Improved Blanket Life
Innovation Benefits

Sustainability

- Trim Reduction = Reduced Paper Waste
- Higher Productivity = Reduction in Additional Wasted Resources
- Improved Product Quality = Reduction in Downstream Wasted Resources
- Less Impression = Improved Anvil Blanket Life = Reduction in Wasted Resources

Savings
Innovation Benefits

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- Paper Cost Savings (*Trim to 1/8” or less*)
- Reduced Impression
- Improved Anvil Blanket Life
- Sustainability
Innovation Application

- Sides Only
- Lead Edge and Trail Edge Only
- All Four (4) Sides
# Innovation Application

## Product Application – 66” Dies

<table>
<thead>
<tr>
<th>Feed Direction</th>
<th>Single Wall</th>
<th>Double Wall</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 275# Test</td>
<td>= / &gt; 275# Test</td>
</tr>
<tr>
<td>With Corrugation</td>
<td>Qualified</td>
<td>Qualified</td>
</tr>
<tr>
<td>Across Corrugation</td>
<td>Qualified</td>
<td>Qualified</td>
</tr>
</tbody>
</table>

*Tested with Success on 37.5” Diecutters*
Innovation Application

Existing Dies Can be Retrofitted
Innovation Has Performed Well:

- Warped Board
- Bundle Breaker Dies
- Double Kicking
- Hot Board / Wet Board
- Double Wall
- Across Corrugation
Press Run Observations

Managing Scrap

Seems to further improve as the press speed increases from conventional die run speeds
Press Run Observations

Managing Scrap

*There is no substitute for good anvil cover maintenance (i.e. rotation, trimming)*
Press Run Observations

Managing Scrap

There is no substitute for good anvil cover maintenance (i.e. rotation, trimming)

However, when anvil blankets are not level, the Innovation’s urethane foam seems to seat with the anvil blankets as the press run progresses and the product’s performance improves with the run.
Press Run Observations

Managing Scrap

*The Innovation better manages trim scrap and prevents other die scrap from mingling in with the product load.*
Press Run Observations

Managing Scrap

The Innovation better manages trim scrap and prevents other die scrap from mingling in with the product load.

A Theory

When trim scrap is not properly managed; upon exiting the diecutter, uncontrolled trim can fly into and disrupt the path of other scrap that was otherwise being managed by the die. By controlling the trim, other scrap is also better controlled with this Innovation.
Press Run Observations

If Equipment Registration Limitations do not permit running with reduced trim, the Converter can still take advantage of all the other benefits

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"the die did EVERYTHING the vendor said it would!
• ran at top speed
• ran with zero scrap
• ran with 1/8" trim!"
- Operator

"Never ran that good before!"
- GM-

"the shaker straps are reading zero, It really has ZERO!!"
-GM-

"This is exactly what we have been looking for!"
- Plant Superintendent

"It was EXCELLENT! More than I ever hoped for!"
- Plant Superintendent

"one of the best innovations to hit the market in a long time"
Management

"Come look at this, the other die wouldn’t even cut it!"
- Operator

"I want it on all my new dies!"
- Owner -
A Rotary Die and Diecutting Innovation

Container Graphics’ MicroTrim™

Another Knock-Out™ Product

Boxer Seal of Approval

Patent Pending in USA, Canada, Mexico, Ireland, and the UK
A Rotary Die and Diecutting Innovation

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The End