



**1D Flat lamination  
&  
2D Profile wrapping  
&  
3D Thermo-forming press  
with Riken Foils**

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Rikentechnos Europe B.V

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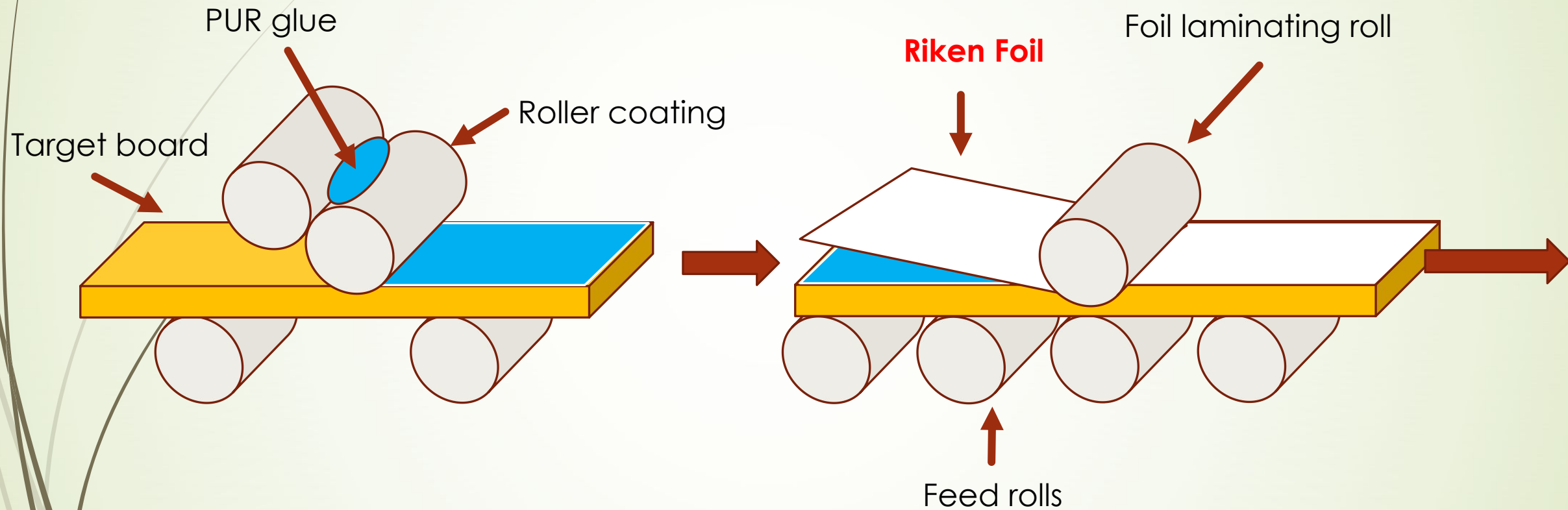
- Application for laminated panels produced 1D, 2D, and 3D lamination
- Basic 1D Flat lamination techniques
- Basic 2D Profile wrapping techniques
- Basic 3D Thermo-forming press techniques
- Difference in 1D, 2D, and 3D
- Riken Foils
  - High gloss finish Uni-colors
  - High gloss finish Wood grains
  - SATIN finish Uni-colors
  - MAT finish & Soft touch Uni-colors
- Summary

# Application for laminated panels produced by 1D, 2D, and 3D lamination



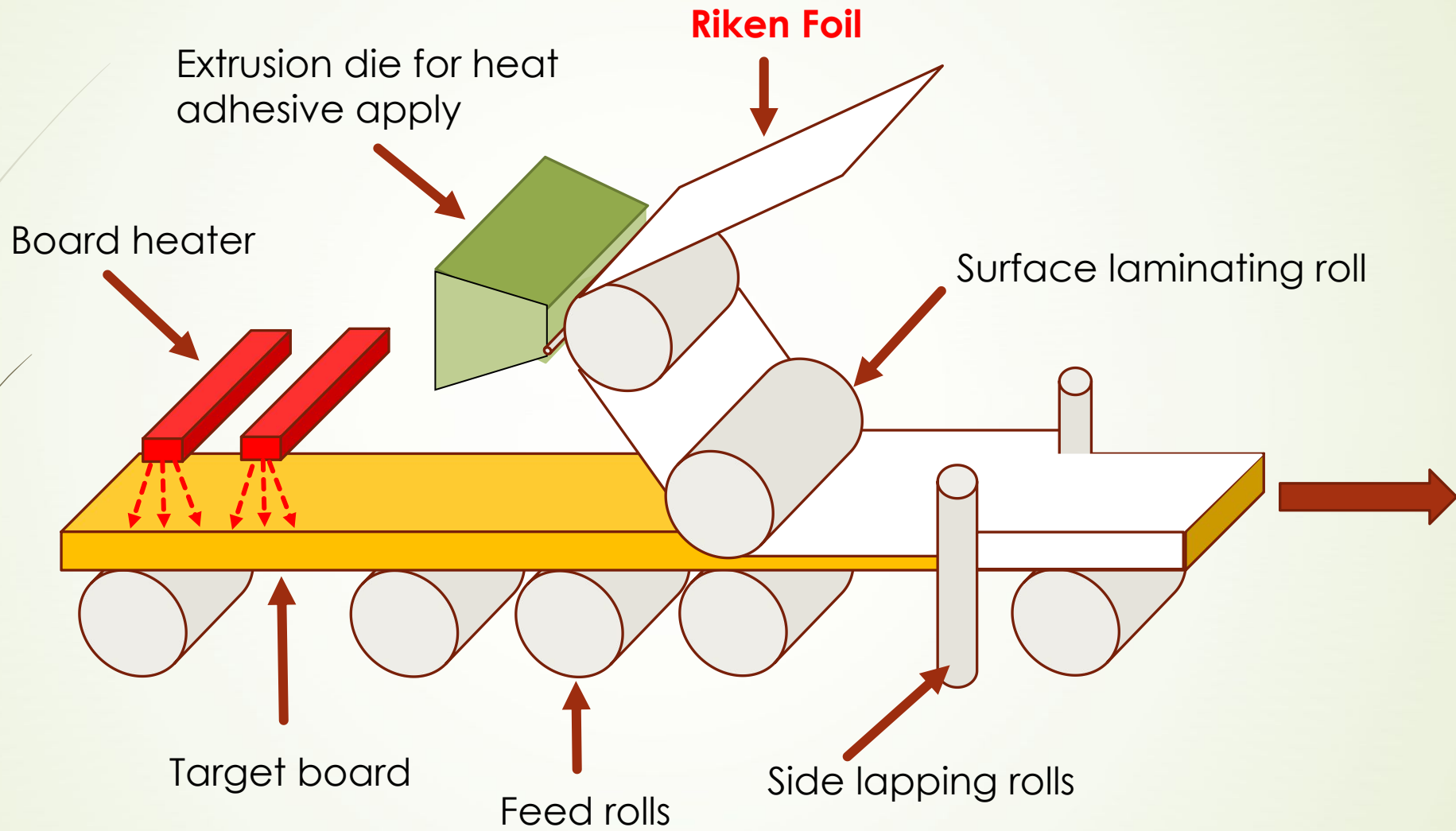
**Laminated panels can be installed in kitchen, indoor furniture, and sometimes home electronics, as well as in retail, hospitality, healthcare environments.**

# Basic 1D Flat lamination techniques



**According to above continuous laminating process, target boards must be in straight shape. In addition, every edges of the board have to be covered by edge banding tape by different laminating facilities.**

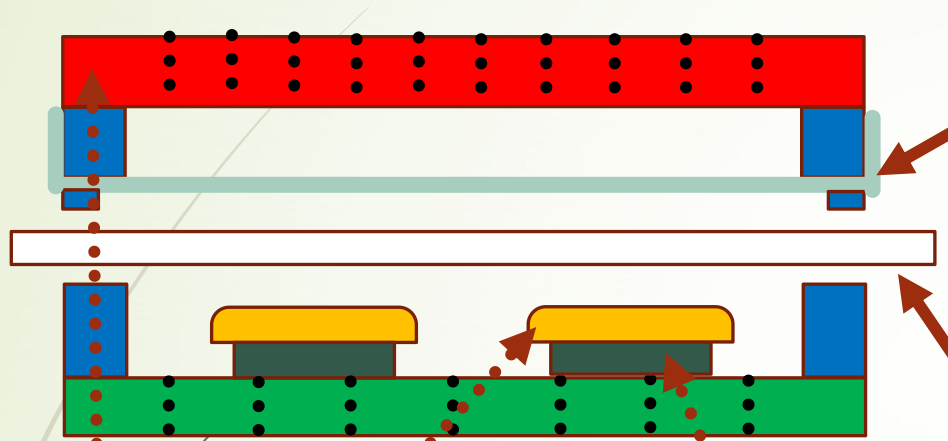
# Basic 2D Profile wrapping techniques



**According to above continuous laminating process, target boards must be in straight shape.**

# Basic 3D Thermo-forming press techniques

## Preparation



Top heating  
prate

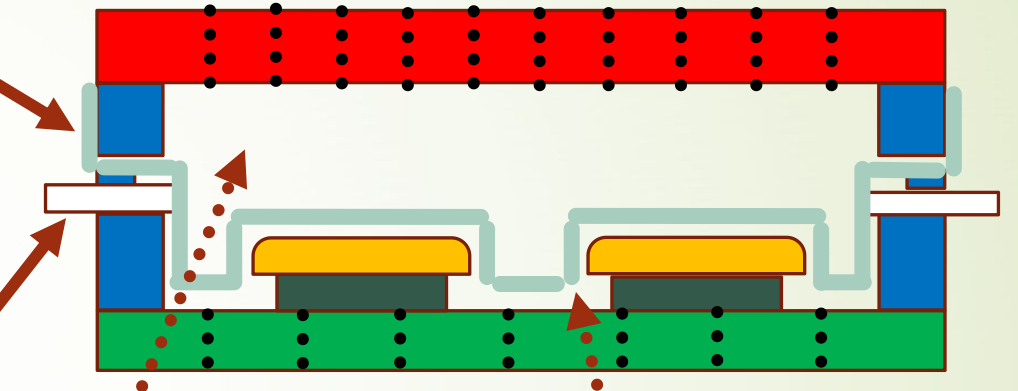
Adhesive  
applied  
target boards

Back boards  
for forming or  
PIN system

Membrane  
rubber

Riken Foil

## Press forming process



High air  
pressure for  
forming

Low air  
pressure for  
forming

**Target shape flexibilities are provided by pressure differences in between top and bottom, and foil ductility. According to above batch process and preparation of adhesive applied boards, there is less advantage in productivity.**

# Difference in 1D, 2D, 3D

	<b>1D Flat lamination</b>	<b>2D Profile wrapping</b>	<b>3D Thermo-forming press</b>
<b>Advantage</b>	<p>Continuous process</p> <p>Flexibility in production amount</p>	<p>Continuous process</p> <p>Productivity</p>	<p>Flexibility in target shape</p>
<b>Disadvantage</b>	<p>Limitation in target shape, edge banding production line is necessary</p>	<p>Limitation in target shape</p>	<p>Batch process</p> <p>Productivity (compare to 1D, 2D)</p>
<b>Machine manufacture</b>	<p>HOMAG(Germany)</p> <p>Burkle(Germany)</p> <p>Barberan(Spain) Etc</p>	<p>Barberan (Spain)</p> <p>HOMAG (Germany) etc</p>	<p>Wemhoner (Germany)</p> <p>Burkle (Germany)</p> <p>Kolmag (Italy) Etc</p>



# Summary

- **Laminating process, such as 1D Flat lamination, 2D Profile wrapping, or 3D Thermo-forming press, will be selected by under consideration of amount, design, and productivity.**
- **Riken foils are applicable to 1D, 2D, and 3D laminating processes.**
- **In addition, solid-colors, wood grains, surface finish, as well as base material could be arranged as per requests.**