

NEENAH COATED FOLDING BOARD - Production Considerations

Standard Material: Note: Determination of the suitability of Neenah Coated Folding Board for the intended use is the user's responsibility. Due to the specialty nature of these products and variability of individual pressroom equipment/conditions, sample sheets should be fully tested prior to actual print run.

Acclimation of Stock: Neenah Folding Board products should be fully acclimated to the environment (with shrink wrap on) well before press run. Recommendations for acclimation time are noted below.

Days Required for Temperature Equalization							
Volume in Cubic Ft.	Temperature Difference						
	10°F	15°F	20°F	25°F	30°F	40°F	50°F
6	0.5	0.5	0.5	1.0	1.0	1.0	1.5
12	0.5	0.5	1.0	1.0	1.0	1.5	2.0
24	0.5	1.0	1.0	1.0	1.5	2.0	3.0
48	0.5	1.0	1.0	1.5	1.5	2.5	3.0
96	0.5	1.0	1.0	1.5	1.5	2.5	3.5
	6°C	8°C	11°C	14°C	17°C	22°C	28°C

Offset Printing: With some exceptions (e.g. matte finish, C1S soft-touch), Neenah Coated Folding Board products are not compatible with Offset and UV Offset printing.

Where compatible, inks that would normally be used to print on any high quality coated sheet are generally acceptable for printing on Neenah Coated Folding Boards. Low VOC inks are recommended. Heavier ink coverage will require longer dry times that can lead to problems with ink set-off.

Drying compounds may shorten drying times but should be used with caution as overuse may cause a staining or ghosting to occur.

A spray powder of 52 micron size, silicone based, is recommended. Ink coverage and lift height will affect your final choice.

When printing the 26pt. material, a smaller sheet size of 20" x 26" (grain long) will provide ease of delivery, as well as help alleviate set off in areas of heavy coverage.

When possible, ink chemistry should be tested on this stock. As is sometimes a problem with coated stocks, certain inks can create a chemical based ghosting or staining of the coated surfaces. Caution should be used when printing solids or PMS colors on lighter grades, as they are known to be susceptible to ghosting under these conditions. Please call for additional recommendations.

Depending on the opacity of particular ink, a double hit, or opaque white, may be needed as an under layer on the darker colors. For optimal opacity on Black Folding Board, metallic inks are recommended. Metallic ink can also be used as an under layer for other inks, since metallic inks have greater opacity than opaque white. When metallic inks are used, a spot varnish should be applied to prevent set-off.

Offset Printing Continued:

For optimal results, we recommend screen size of up to 150 lpi. Under-color removal may be required on jobs with large dark areas.

Infrared press sensors may have trouble detecting black Folding Board products. Consult with your press manufacturer. Some printers have overcome this issue by applying white tape along the edge of the first few.

Coatings: With some exceptions, Neenah Coated Folding Board products are compatible with aqueous and UV coatings. Spot UV, and spot varnishing are recommended.

Foil Stamping and Embossing:

Copper or brass dies are recommended.

Metallic foils are recommended. Crown metallic foils with a loose release (BW88 and BD92) and Nakai NV have worked well.

If choosing a pigmented foil, caution should be taken to work with your foil supplier and test thoroughly before committing to artwork as some of our customers experience problems attempting to stamp with pigmented foils.

Large areas of foil coverage are not recommended; limit fill areas to approximately a 2" x 2".

Due to the high density of 18pt. and 26pt. stocks, simple, single-level dies are better suited for foil embossing and blind embossing. A two-step process (stamp, then emboss) will yield best results for foil embossing on 26pt. sheets. Dies should have rounded corners to prevent creases.

Typical temperatures for stamping and embossing range from 240 - 260°F, and should not exceed 300°F.

Screen Printing: Neenah Coated Folding Boards yield excellent results with screen printing. Solvent or water-based inks are recommended. Test with your screen printer.

Gluing: 3M 969 is recommended for use with 18pt. and 26pt. boards.

Cutting and Die-cutting: Neenah Coated Folding Boards can be guillotine, rotary or die cut. All normal steel ruled die cutting processes may be used. It can be cleanly punched and will readily accept all conventional fasteners, such as grommets.

Scoring and Folding: Neenah Coated Folding Boards score and fold well and have good hinge/fold characteristics.

See Scoring & Folding Guidelines below and continued on the next page.

Scoring & Folding Guidelines: Neenah Coated Folding Boards can be scored and bent to make very satisfactory hinged products required for a number of applications, providing the operation is within the limits required for this particular material. General guidelines provided by the Recycled Paperboard Technical Association (RPTA) can be used to assist the proper decisions for rule and channel dimensions, while taking the non-traditional nature of the material into account.

1. To fold and bend these materials, the stiffness of the sheet at the bending line needs to be lowered and a flexible "hinge" formed within the sheet itself. This is achieved by scoring.

Scoring & Folding Guidelines Continued:

2. A satisfactory score must reduce the bonding strength of the sheet along the line where the board is folded. In addition, the width of this area must be great enough to allow the material to squeeze down into a "bead" on the inside of the bend.
3. Neenah Coated Folding Boards score and bend better when processed at the normal moisture content (as manufactured). Material that has lost its normal moisture content by exposure to a low-humidity atmosphere, is more likely to crack when scored and bent due to the dry condition of the sheet.

Scoring Rule Selection: Two major considerations define the conditions that direct the choice of scoring rules for a job. First, the female channel width should be slightly $<$ or $=$ to twice the board caliper plus the thickness of the rule. Second, female channel width must be between 3.5 and 4 times the board caliper for CD scores, and about 3.5 times the caliper for MD scores.

Neenah Coated Folding Boards are 20 - 30% denser than traditional boxboard, and their construction provides greater plybond than equal caliper boards of lower density. Therefore, the board needs to be treated as if it were higher in caliper by 15% than it actually is.

Application of the above guidelines provides the following scoring rule recommendations:

Board Caliper	Effective Caliper	Rule #	Rule Thickness	Rule Penetration
18pt.	0.0207"	3	0.042"	0.005" – 0.010"
26pt.	0.0299"	4	0.056"	0.008" – 0.013"

For decorative packaging applications using 26pt. Neenah Coated Folding Board:

While a 4-point rule is sufficient for fixed scores on box corners, a larger score is necessary to handle the additional stress demands of a box hinge where the score line may be folded 90° the opposite way. Packages designed in this manner would require a 6-point rule for such hinges. Channel width for these scores should be about 0.172" for CD scores and 0.162" for MD scores. Depth of penetration of the male rule should be in the same range as the 4-point.

Scoring rules should be rounded to prevent cutting the board (We suggest rounding at a 0.005" radius).

Calculations:

1. **Rule Width:** In die cutting terminology, rule width is characterized by the term "point". One "point" is equal to 0.014". So, a 2-point rule is 0.028", a 3-point rule is 0.042", and so on.
2. **Rule Selection:** Two criteria need to be met simultaneously in order to indicate an appropriate rule choice for a given caliper board (see Scoring Rule Selection). The selection of a 4-point rule for 0.026" Folding Board can be verified by applying its width and the "effective board caliper" (29.9 pt) to the criteria.
 - a. Female channel width less than or equal to 2x board caliper + rule thickness
Female channel width less than or equal to $2 \times 0.0299" + 0.056"$ (which is 0.1158")
 - b. Female channel width between 3.5 and 4 times board caliper for CD scores.
 $3.5 \times 0.0299" = 0.10465"$ and $4.0 \times 0.0299" = 0.1196"$
A 4-point rule is the first rule width that satisfies both criteria.