



Knockout! 100 Series

Because 100 Series finishes are perforated, some technical information regarding these finishes (ie. cutting, adhering etc.) varies from our other finishes. Please refer to other sections for technical information regarding these series.

100 series

Sizes: 96" X 48" sheets.

Thickness: Finish no. 100 is .020" thick. Finish nos. 101, 102 and 103 are .025" thick. Finish no. 107 is .043" thick.

Weight: No. 100 7.6 lbs. per sheet. Nos. 101, 102, 103 and 107 are 9.6 lbs. per sheet.

PRODUCT DESCRIPTION: Finish numbers 100, 101, 102 and 103 are solid aluminum. Finish number 107 is aluminum with a High Pressure Laminate backer.

In the production of metallic laminates some surface irregularities, and color and pattern variances will appear. We recommend that you inspect the material before cutting or laminating. If any material proves to be defective, Chemetal will be liable for the cost of that material only. No other warranty is expressed or implied.

SHIPPING: All sheets must be shipped flat.

STORAGE AND HANDLING: Store flat, not on edge. The laminates should be stored face-up in a cool, dry area and in a completely supported flat position. Protect material from twist, rack and edge damage. To prevent surface distortion, large sheets should be handled by two people and transported face up. Do not roll finishes in the 100 Series.

APPLICATIONS: The 100 Series laminates are recommended for interior use only on vertical and light-duty horizontal applications where no weight will be applied to the materials. When used on other horizontal surfaces they should be protected under glass or other equivalent materials.

PROTECTIVE MASK: Although Chemetal's metallic laminates are supplied with a protective mask, care should be taken when handling them. Do not expose sheets to light for long periods of time. This may cause problems with the removal of the protective mask. It is recommended to leave this mask on the surface of the laminates during processing work. Nevertheless, color uniformity and other quality checks should be carried out on the sheets beforehand by simply lifting up the edge of the mask and laying it back down.

APPLICATION: We recommend the use of a mechanical fastening system when using Knockout finishes. Contact cements may work well with finish numbers 100, 102 and 107. The contact cement may become visible if an excessive amount of adhesive is used. Please contact Chemetal for larger samples so that you can test your fastening system with our product.

ADHESIVES: Finish numbers 100, 102 and 107 may be laminated with many of the conventional adhesives normally used with plastic laminates, such as many contact cements. The use of heat-activated adhesives is not recommended. Always check with your adhesive supplier to make sure the adhesive you select is suitable for your application. In all cases, the adhesive manufacturer's instructions should be followed as to the use of the adhesive and substrate preparation. To clean off adhesives, use a solvent like alcohol, benzene, naphtha or mineral spirits. Do not use ammonia, abrasive cleaners or pads, or harsh solvents. Do not use solvents that attack lacquers. It is recommended that you test your adhesive system and/or cleaning agents with a sample.

LAMINATION: Proper substrates must be used and careful bonding procedures must be observed. The more resistant the substrate is to dimensional change (shrinkage and/or expansion from changes in humidity and temperature) the better the long-term results will be. The face of the substrate must be smooth and free of grease, wax, dust, chips and other foreign matter. Sufficient spacing must be provided between and at each end of sheets or strips to accommodate possible linear expansion from the ambient temperature range at the installation site. Minimum spacing of 1/32" is recommended but a more accurate determination can be made by allowing 1/100" for each 96" of metal surface for each 10 degrees Fahrenheit of anticipated temperature change. If you are not sure how any metallic laminate will work for your particular application, we suggest you test the application system you have selected under production and/or installation site conditions. If you require additional information, please contact us.

CAUTION: In all cutting, machining and finishing procedures safety goggles, gloves, long pants and long-sleeved shirts must be worn and precautions must be taken to protect eyes from metal particles. Caution should be exercised in handling pieces since burred edges can cause cuts. Metallic laminates will conduct electricity and can cause shocks or short circuits when in contact with ungrounded electrical circuits.

CUTTING AND MACHINING: Most hand and power woodworking equipment and techniques may be used to work Chemetal's metallic laminates. All blades must be sharp, and the use of carbide-tipped

cutters and multi-fluted router bits is recommended. Dull cutters create excessive chipping and burring and reduce the quality of the work. When routing, the less material removed, the better. It is also important that the face of the material be protected from the base plate of the router. To remove any burrs that may occur, use a smooth mill bastard file to feather all corners and edges. In all cases the user must determine the suitability of products for any particular purpose and use, including establishing his or her own procedures for fabricating and installing these products. The information supplied is a general guideline and a supplement to tool manufacturers' recommendations as to proper use and capabilities of their equipment. This information is believed to be reliable but no warranty is expressed or implied.

SAWING: To minimize burring and edge distortion, it is important that the saw blade teeth cut into the decorative face, with the blade height about 1/4" above the material, and the saw access plate refitted to reduce free space surrounding the blade. This may be accomplished by using 1/4" hard board as an overlay carrier board. Roller hold downs on either side of the blade help reduce chatter.

General rules for selecting saw blades for 3450 RPM table saw:

- Sharp carbide tip blade
- Blade diameter: 8" to 14"
- Number of teeth: the more teeth per inch the better the results
- Pitch: 0.417" or less
- Rake angle: 10 degrees or less (zero degrees works well)
- Kerf: the thicker the blade the less chatter
- Grind: uni-chip or triple-chip

Do not force material through saw. A constant feed rate will produce smoother cuts. Blade wax will promote better cuts and longer tool life. Note: Dull or damaged blades will tear, scorch, melt or even delaminate laminated material. It is recommended that you sandwich the metal between two substrates in all sawing operations. The use of a carrier sheet during cutting may be a viable option.

ROUTING: Routing may be done using electric or air powered routers. Sharp multi-fluted carbide cutters are necessary. the larger the diameter of the cutter the better the results will be. The speeds recommended are the same as those used in standard woodworking practices. It is important to use a router having adequate horsepower to maintain cutting speeds. It is also important that the cutter travel direction be against the cutter rotation. For edge trimming, high speed trimmers should be used (approximately 22,000 RPM) and will produce smooth burr-free edges. The less material cut, the smaller the burr: 1/8" of material should be the maximum. Use special care at corners to avoid tearing or bending of the metal. Protect the surface from

scratches by riding the router base on a strip of .020" backing sheet or equivalent. If a bearing guide is to roll on the surface, it must be completely free rolling. Use a smooth mill bastard file to feather all corners and remove burrs from machined edges. Always file down on the decorative surface.

BENDING AND FORMING: Any metal without an HPL backer can be bent to wrap around square or radiused corners. We suggest the metal be preformed to the desired radius prior to lamination. For a sharp, crisp bend, scribe or score the back of the metal on the line where it is to be bent, approximately 1/3 into the thickness of the metal. (Note: when bending to a tight radius, it is normal for some slight crazing of the anodized surface layer to occur.) On radiused corners use hand-held pressure or rolling tools to have the metal conform to the substrate contours. Although these metals have very little "spring back," extra-firm laminating pressure must be applied just in front of and following the corner, and on curved areas. Also, some preforming of the metal sheet will help the material to bond properly. For a slightly radiused corner, barely scribe the metal with the "V" cutter. Use caution when folding. The grooved section cannot be repeatedly opened and closed as it will eventually break off.

CLEANING AND MAINTENANCE: Clean with a soft cloth using mild soap and water or nonabrasive glass and metal cleaning liquids. Do not use ammonia, abrasive cleaners or pads, or harsh solvents.

CAUTION: Metallic laminates will conduct electricity and can cause shocks or short circuits when in contact with ungrounded electrical circuits.

WARRANTY DISCLAIMER AND LIABILITY: The information in this Technical Information Sheet and all related documents released by Chemetal is believed to be reliable; but Chemetal disclaims the creation of any expressed or implied warranty including the warranties of merchantability and fitness for a particular purpose with respect to Chemetal products. In all cases, users must determine the suitability of such products for any particular use and shall assume all risk and liability

whatsoever in connection herewith. Since we exercise no control in handling, storage, application and use of these products or the products of others with which they are used in combination, no warranty, express or implied, is made as to the results and effect of their use. User must also establish his or her own procedures and verify the finish of any product to be as ordered before use. We recommend testing all procedures before beginning production or installation. Buyer's exclusive remedy for a loss or claim resulting from the use of Chemetal products shall be replacement of product proven to be defective. In no event shall the Seller be liable for any special,

incidental, consequential or exemplary damages.

IMPORTANT: This information is intended to be a general guideline.

200 Series - The Design Collection

PRODUCT DESCRIPTION: The 200 Series, the Design Collection, are high pressure laminates made from a thin metal foil laminated to a phenolic backer with very high pressure and heat. In the 200 Series numbers 213, 214, 216, 219, 220, 221, 223, 226, 227, 233 and 244 are aluminum. Numbers 211, 217, 218, 230, 238 and 241 are copper. Also, numbers 211, 217, 218, 220, 223, 244, 253, 258, 260, 262, 264, 266, 269 and 270 have an oxidation and/or topcoat applied by Chemetal.

211 Sunburst

213 Lunaria

214 Diamondback

216 Footplate

217 Reptilian

218 Cobblestone

219 New Yorker

220 Venetian Wave

221 Argenta

223 Chromium

226 Venetian Vertical

227 Venetian Horizontal

230 Moonscape

233 Honeycomb

238 Autumn Leaves

241 Sienna

244 Pewter Wave

253 Metropolis

258 Titania

260 Champagne Leaf

262 Red Rock

264 Pewter Vine

266 Pewter Argenta

269 Apollo

270 Fossil

All finishes in the 200 Series are available only with an HPL (high pressure laminate) backer.

Sizes: 48" X 96" Nos. 220, 226, and 227 are also available in 48" X 120" sheets. Finish No. 244 is available in 48" X 96" sheets.

Thickness: .055" thick.

Weight: 48" X 96" sheets: 13.44 lbs. 48" X 120" sheets: 16.8 lbs.

For all finishes, custom sizes and strips are available by special order. Please contact us for a quotation.

300 Series - Mettle® Images

The 300 Series, Mettle® Images, are high pressure laminates made from a thin metal foil laminated to a phenolic backer with very high pressure and heat, except for finish number 333, which is solid embossed aluminum. The finish on each sheet is expertly created by hand. While the general coloration of each finish is similar, no two sheets are exactly alike.

Numbers 309, 310, 320, 324, 325, 330 and 336 are oxidized brass on an HPL backer. Numbers 313, 314, 315, 316, 317, 318, and 340 are oxidized copper on an HPL backer. Finish numbers 309 and 325S in widths of 48" will have a seam in the approximate middle of the sheet running the length of the sheet.

309 Brass - Etruscan B

310 Antiqued Brushed Brass*

313 Copper - Renaissance*

314 Copper - Mayan*

315 Copper - Canterbury*

316 Copper - Monterey*

317 Copper - Aurora*

318 Copper - Essex*

324 Brass - Sheffield*

325S Brass - Statuary

330 Norwood*

333 Aluminum - Franklin

336 Brass - Seurat*

340 Copper - Monet*

*Available only with a high pressure laminate backer.

Sizes: 48" X 96" & 48" X 120"

Thickness: .043", except finish No. 333, which is .020" thick and finish nos. 309 & 325S are .016" thick when supplied as metal only.

Weight: Nos. 309 & 325S when supplied as metal only: 24" X 96" sheet: 11.3 lbs., 24" X 120" sheet: 14.1 lbs. Nos. 310, 313, 314, 315, 316, 317, 318, 324, 330, 336 & 340: 48" X 96" sheet: 11 lbs., 48" X 120" sheet: 13.8 lbs. No. 333: 48" X 96" sheet: 9.1 lbs., 48" X 120" sheet: 11.4 lbs. For all finishes, custom sizes and strips are available by special order.

Please contact us for a quotation.

400 Series - The Vortex Collection

In the 400 Series, The Vortex Collection™, numbers 406, 407, 413, 414, 417, 420, 427, 440, 443 & 444 are solid aluminum. Number 442,

447 & 448 are copper with an HPL back. Finish numbers 406, 407, 413, 414, 427, 443 & 444 are available with an HPL back. Finish numbers 417, 420 and 440 are available with a low-pressure phenolic backer. Finish numbers 445 and 446 in widths of 48" will have a seam in the middle of the sheet running the length of the sheet.

406 Circles Aluminum**

407 Kaleidoscope Aluminum**

413 Linear Aluminum**

414 Nomadic Aluminum**

417 Antiqued Nomadic Aluminum***

420 Cascade Aluminum***

427 Placid Aluminum**

440 Crescendo Aluminum***

442 Copper Plume*

443 Aluminum Plume**

444 Feathered Aluminum

445 Nomadic Brass*

446 Feathered Brass*

447 Nomadic Copper*

448 Feathered Copper*

*Available only with a high pressure laminate backer. **Available with an optional high pressure laminate back.

***Available with an optional low pressure phenolic back.

Sizes: Nos. 406 & 407: 48" X 96" Nos. 413, 414, 417, 420, 427, 440, 442, 443, 444, 445, 446, 447 & 448: 48" X 96" & 48" X 120"

Thickness: No. 417: .025" thick. Nos. 406, 407, 413, 414, 420, 427, 440, 443 & 444: .020" thick. No. 442: .043" Nos. 445, 446, 447 & 448 are .043" thick.

Weight: Nos. 406, 407, 413, 414, 420, 427, 440, 443 & 444: 48" X 96" sheet: 9.1 lbs. Nos. 413, 414, 420, 427, 437, 440, 443 & 444: 48" X 120" sheet: 11.4 lbs. No. 417: 48" X 96" sheet 11.3 lbs., 48" X 120" sheet: 14.1 lbs. Nos. 442, 445, 446, 447 & 448: 48" X 96" sheet: 11 lbs., 48" X 120" sheet: 13.8 lbs.

Weights of metals in the 400 Series with optional backers: Nos. 406, 407, 413, 414, 427, 443 & 444: 48" X 96" sheet: 13.0 lbs. Nos. 413, 414, 427, 443 & 444: 48" X 120" sheet: 16.0 lbs. Nos. 442, 445, 446, 447 & 448: 48" X 96" sheet: 11 lbs., 48" X 120" sheet: 13.8 lbs. No. 417 with a phenolic back: 48" X 96" sheet: 18.0 lbs., 48" X 120" sheet: 22.3

lbs. Nos. 420 & 440 with a phenolic back: 48" X 96" sheet: 15.6 lbs., 48" X 120" sheet: 19.4 lbs.

For all finishes, custom sizes and strips are available by special order. Please contact us for a quotation.

700 Series - High Pressure Mettle® Laminates

The 700 Series, High Pressure Mettle® Laminates, are made from a thin metal foil laminated to an HPL backer with very high pressure and heat. Numbers 701, 702, 703, 704, 707 & 719 are aluminum.

Numbers 706 and 709 are copper. Number 710 is stainless steel, for which we have included special instructions for working and cutting.

701 Polished Aluminum

702 Brushed Aluminum

703 Polished Brass Aluminum

704 Brushed Light Brass Aluminum

706 Satin Copper

707 Cross Brushed Aluminum

710 Brushed Stainless Steel

719 Satin Silver Aluminum

All finishes in the 700 Series are available only with an HPL (high pressure laminate) backer.

Sizes: 48" X 96" & 48" X 120", except No. 710, which is 40" X 96"

Thickness: .037"

Weight: 48" X 96" sheet: 10 lbs. 48" X 120" sheet: 12.5 lbs. No. 710 in 40" X 96" sheet: 8.5 lbs. For all finishes, custom sizes and strips are available by special order.

Please contact us for a quotation.

800 Series - The Traditional Collection

The 800 Series, The Traditional Collection, are low pressure metallic laminates. Numbers 801, 802 and 812 are chrome plated brass.

Numbers 803 and 804 are solid brass. Numbers 805 and 806 are solid copper. Numbers 813 and 814 are bronze. All the 800 Series finishes are supplied with a phenolic backer but are also available as a solid metal.

801 Polished Chrome

802 Satin Chrome

803 Polished Solid Brass

804 Satin Solid Brass

806 Satin Solid Copper

812 Satin Smoked Chrome

813 Polished Golden Bronze

814 Satin Golden Bronze

Sizes: 24" X 96" & 24" X 120".

Thickness: metal only: 016" With a phenolic backer: .042"

Weight: Nos. 801, 802, 803, 804 & 812: metal only: 24" X 96" sheet:

11.3 lbs., 24" X 120" sheet: 14.9 lbs. No. 806: metal only: 24" X 96"

sheet: 11.9 lbs., 24" X 120" sheet: 14.9 lbs. Nos. 813 & 814: metal

only: 24" X 96" sheet: 11.7 lbs., 24" X 120" sheet: 14.7 lbs. For total

sheet weight with a phenolic backer, add these weights to the weights listed above: 24" X 96" sheet: 3 lbs., 24" X 120" sheet: 3.75 lbs. For all finishes, custom sizes and strips are available by special order. Please contact us for a quotation.

900 Series, Mettle Mica®

All the finishes in the 900 Series, Mettle Mica®, are solid aluminum. All finishes in the 900 Series are available with an optional phenolic backer.

901 Polished Aluminum
902 Brushed Aluminum
903 Polished Brass Aluminum
904 Brushed Light Brass Aluminum
905 Polished Copper Aluminum
908 Satin Black Aluminum
909 Satin Silver Aluminum
910 Satin Gold Aluminum
911 Polished Smoked Aluminum
912 Satin Bronze Aluminum
913 Polished Bronze Aluminum
914 Cross Brushed Aluminum
915 Brushed Brass Aluminum
916 Brushed Pewter Aluminum
924 Bronze Stainless Steel Aluminum
926 Safari Aluminum
927 Light Stainless Steel Aluminum

Sizes: 48" X 96" & 48" X 120". Lengths greater than 120" are available.

Thickness: .025".

Weight: 48" x 96" sheet: 11.3 lbs. 48" X 120" sheet: 14.1 lbs. For total sheet weights with a phenolic backer, add these weights to the weights listed above: 48" X 96" sheet: 6 lbs., 48" X 120" sheet: 7.5 lbs.

GENERAL/STORAGE/CLEANING/WARRANTY

In the production of metallic laminates some surface irregularities, and color and pattern variances will appear. We recommend that you inspect the material before cutting or laminating. If any material proves to be defective, Chemetal will be liable for the cost of that material only. No other warranty is expressed or implied.

APPLICATIONS: Chemetal laminates are recommended for interior use only on vertical and light-duty horizontal surfaces. When used on other horizontal surfaces they should be protected under glass or other equivalent materials.

STORAGE AND HANDLING: Store flat, not on edge. The laminates should be stored face-up in a cool, dry area and in a completely supported flat position. Use a top sheet of chipboard or similar material to hold stored sheets flat. Protect material from twist, rack and edge damage. To prevent surface distortion, large sheets should be handled by two people and transported face up. If materials are to be rolled, care must be taken to avoid bending. Do not compress coils. Material with a backer must have the face out. Rolling with the face in will crack the backing material. Roll loosely to a minimum diameter of 18 inches.

PROTECTIVE MASK: Although Chemetal's metallic laminates are supplied with a protective mask, care should be taken when handling them. Do not expose sheets to light for long periods of time. This may cause problems with the removal of the protective mask. It is recommended to leave this mask on the surface of the laminates during processing work. Nevertheless, color uniformity and other quality checks should be carried out on the sheets beforehand by simply lifting up the edge of the mask and laying it back down.

CLEANING AND MAINTENANCE: Clean with a soft cloth using mild soap and water or nonabrasive glass and metal cleaning liquids. Do not use ammonia, abrasive cleaners or pads, or harsh solvents. Number 710 only may be cleaned with agents containing ammonia.

CAUTION: Metallic laminates will conduct electricity and can cause shocks or short circuits when in contact with ungrounded electrical circuits.

WARRANTY DISCLAIMER AND LIABILITY: The information in this Technical Information Sheet and all related documents released by Chemetal is believed to be reliable; but Chemetal disclaims the creation of any expressed or implied warranty including the warranties of merchantability and fitness for a particular purpose with respect to Chemetal products. In all cases, users must determine the suitability of such products for any particular use and shall assume all risk and liability whatsoever in connection herewith. Since we exercise no control in handling, storage, application and use of these products or the products of others with which they are used in combination, no warranty, express or implied, is made as to the results and effect of their use. User must also establish his or her own procedures and verify the finish of any product to be as ordered before use. We recommend testing all procedures before beginning production or installation. Buyer's exclusive remedy for a loss or claim resulting from the use of Chemetal products shall be replacement of product proven to be defective. In no event shall the Seller be liable for any special, incidental, consequential or exemplary damages.

IMPORTANT: This information is intended to be a general guideline. For further information please contact Chemetal, 39 O'Neill Street, Easthampton, Massachusetts, 01027. Phones: 800-807-7341 and 413-529-0718. Fax: 413-529-9898.

LAMINATING AND ADHESION

ADHESIVES: Chemetal laminates may be laminated with many of the conventional adhesives normally used with plastic laminates, such as many contact cements. The use of heat-activated adhesives is not recommended. Always check with your adhesive supplier to make sure the adhesive you select is suitable for your application. In all cases, the adhesive manufacturer's instructions should be followed as to the use of the adhesive and substrate preparation. To clean off adhesives, use a solvent like alcohol, benzene, naphtha or mineral spirits. Do not use ammonia, abrasive cleaners or pads, or harsh solvents. Do not use solvents that attack lacquers. It is recommended that you test your adhesive system

and/or cleaning agents with a sample piece of metal.

LAMINATION: Proper substrates must be used and careful bonding procedures must be observed. Substrates should be of good quality plywood, high density particleboard or high quality fiberboard. The more resistant the substrate is to dimensional change (shrinkage and/or expansion from changes in humidity and temperature) the better the long-term results will be. The face of the substrate must be smooth and free of grease, wax, dust, chips and other foreign matter. When using reflective decorative metal surfaces it is imperative that the bonding surface be absolutely flat or distortions in the reflectiveness may occur. It is recommended that the back of any solid metal be scratched prior to lamination. To ensure a good bond, consult and follow the adhesive manufacturer's instructions on preparation of substrates, surfaces and adhesive application. All types of adhesive must be applied evenly and uniformly. Globules may transfer through the surface during laminations, and starvation areas may cause long-term delamination. There must be no bridging, and positive bonding pressure must be applied uniformly and progressively over the entire surface. To bond a metallic laminate to your substrate after gluing, pressure must be firmly and evenly applied over the entire surface using a rotary or platen press. If possible, balanced construction should be used with sheets of equivalent expansion and shrinkage ratios. The use of hand or "J" rollers is not recommended for laminating metallic laminate sheets. They can be used for laminating strips as long as firm, even pressure is applied to the entire length. Once you have started to roll down a piece of laminate do not try to realign it. While you may be able to force it into position, you will put

stress into the metal, which may cause buckling and bond failure. Chemetal's metallic laminates will readily conform to the surface of your substrate. For a smooth, flat surface appearance, extra care may be required in surface preparation and lamination. If your application requires extra support, a phenolic backer sheet is available upon request for finishes that are not already supplied with one. It is recommended that all Chemetal metallic laminates and substrates be stored at room temperature and relative humidity of 50% for at least 48 hours prior to lamination. The completed parts should be stored for at least 48 hours before exposure to extreme temperature and humidity changes. (Most contact adhesives require this minimum time to reach initial bond strength.) Lamination performed in cold temperatures may affect long-term results. Also recommended is the use of balancing sheets. They act as a moisture barrier to ensure a balanced construction. If possible, balanced construction should be used with sheets of equivalent expansion and shrinkage ratios. Sufficient spacing must be provided between and at each end of sheets or strips to accommodate possible linear expansion from the ambient temperature range at the installation site. Minimum spacing of 1/32" is recommended but a more accurate determination can be made by allowing 1/100" for each 96" of metal surface for each 10 degrees Fahrenheit of anticipated temperature change. If you are not sure how any metallic laminate will work for your particular application, we suggest you test the application system you have selected under production and/or installation site conditions. If you require additional information, please contact us.

CUTTING, MACHINING, ROUTING

CAUTION: In all cutting, machining and finishing procedures safety goggles must be worn and precautions must be taken to protect eyes from metal particles. Caution should be exercised in handling pieces since burred edges can cause cuts. Metallic laminates will conduct electricity and can cause shocks or short circuits when in contact with ungrounded electrical circuits.

CUTTING AND MACHINING: Most hand and power woodworking equipment and techniques may be used to work Chemetal's metallic laminates. For laminates that are solid metals, some adjustments may be required in handling and processing techniques. All blades must be sharp, and the use of carbide-tipped cutters and multi-fluted router bits are recommended. Dull cutters create excessive chipping and burring and reduce the quality of the work. When routing, the less material removed the better. It is also important that the face of the material be protected from the base plate of the router. To remove any burrs that may occur, use a smooth mill bastard file to feather all

corners and edges.

CUTTING number 710, Stainless Steel, additional information: When cutting on table saw, panel saw, etc., the stainless steel layer must always be facing up. The speed of travel should be approximately 30 feet per minute. The blade diameter can be from 7" to 18" with a 6 degree negative hook, 13 mm pitch, triple grind carbide blade. In all cases the user must determine the suitability of products for any particular purpose and use, including establishing his or her own procedures for fabricating and installing these products. The information supplied is a general guideline and a supplement to tool manufacturers' recommendations as to proper use and capabilities of their equipment. This information is believed to be reliable but no warranty is expressed or implied.

SAWING: To minimize burring and edge distortion, it is important that the saw blade teeth cut into the decorative face, with the blade height about 1/4" above the material, and the saw access plate refitted to reduce free space surrounding the blade. This may be accomplished by using 1/4" hard board as an overlay carrier board. Roller hold downs on either side of the blade help reduce chatter. For more information on no. 710, please refer to the section below titled "CUTTING number 710, Stainless Steel.

General rules for selecting saw blades for 3450 RPM table saw:

- Sharp carbide tip blade
- Blade diameter: 8" to 14"
- Number of teeth: the more teeth per inch the better the results
- Pitch: 0.417" or less
- Rake angle: 10 degrees or less (zero degrees works well)
- Kerf: the thicker the blade the less chatter
- Grind: uni-chip or triple-chip

Do not force material through saw. A constant feed rate will produce smoother cuts. Blade wax will promote better cuts and longer tool life.

Note: Dull or damaged blades will tear, scorch, melt or even delaminate laminated material.

ROUTING: Routing may be done using electric or air powered routers. Sharp multi-fluted carbide cutters are necessary; the larger the diameter of the cutter the better the results. The speeds recommended are the same as those used in standard woodworking practices. It is important to use a router having adequate horsepower to maintain cutting speeds. It is also important that the cutter travel direction be against the cutter rotation. For edge trimming, high speed trimmers should be used (approximately 22,000 RPM) and will produce smooth burr-free edges. The less material cut, the smaller the burr: 1/8" of material should be the maximum. Use special care at corners to avoid tearing or bending of the metal. Protect the surface from

scratches by riding the router base on a strip of .020" backing sheet or equivalent. If a bearing guide is to roll on the surface, it must be completely free rolling. Use a smooth mill bastard file to feather all corners and remove burrs from machined edges. Always file down on the decorative surface.

ROUTING number 710, Stainless Steel, additional information: When cutting on CNC type routers testing showed the 3 fluted solid carbide tips gave the best results. The speed of the router would be approximately 16,000 to 18,000 RPM, and the speed of travel would be approximately 20 feet per minute. The shank diameter would be 1/2" to 3/4". The length can be from 3" to 4". The upcut or downcut determines which way the finished side of the material will face up. The right hand twist determines the face to be down, and the left hand twist determines the face to be up.

BENDING AND FORMING

Recommendation by Series:

- 200 Series, The Design Collection; 300 Series, Mettle(r) Images; & 700 Series, High Pressure Mettle(r) Laminates: all radius bending should be handled in the same manner as all grades of non-postforming high pressure decorative laminates.
- 400 Series, The Vortex Collection™: see paragraph below.
- 800 Series, The Traditional Collection: outside radii are possible down to 10" when the product is used with a phenolic backer. For smaller radii, the material must be used without the phenolic backer. Inside radii can only be achieved with metal without a phenolic backer.
- 900 Series, Mettle Mica(r): see paragraph below Any metal without a phenolic or HPL backer in The 400, 800 and 900 Series can be bent to wrap around square or radiused corners. We suggest the metal be preformed to the desired radius prior to lamination. For a sharp, crisp bend, scribe or score the back of the metal on the line where it is to be bent, approximately 1/3 into the thickness of the metal. (Note: when bending to a tight radii, it is normal for some slight crazing of the anodized surface layer to occur.) On radiused corners use hand-held pressure or rolling tools to have the metal conform to the substrate contours. Although these metals have very little "spring back," extra-firm laminating pressure must be applied just in front of and following the corner, and on curved areas. Also, some preforming of the metal sheet will help the material to bond properly. For a slightly radiused corner, barely scribe the metal with the "V" cutter. Use caution when folding. The grooved section cannot be repeatedly opened and closed as it will eventually break off.