

The background of the advertisement features three rolls of creasing material, one in red, one in white, and one in blue, arranged diagonally from the top left towards the bottom right. The rolls are partially unrolled, showing the creasing pattern. The background is a solid blue color.

Channel

Marathon

Plastrix

Creasing SOLUTIONS

Channel[®] Creasing Matrix, Inc.
America's creasing specialists

Proudly made in the U.S.A.

Channel[®] Creasing Matrix Inc.

Made in the USA

Channel Creasing Matrix Inc. has been a leader in creasing matrix since it was incorporated in 1964. With over 40 years of manufacturing experience we bring you the products you need for the application at hand. Our goal is to service you with the highest quality products that help you to reduce your down time and increase your efficiency and profitability.

Our people are trained with the knowledge of what you need depending upon your application. With Channel[®] Creasing Matrix Inc. our products are guaranteed to work for you. We are an American manufacturer that gives you the solutions and answers you need, when you need them.

We patented our bonding process for location adhesion many years ago. Since that time we have taken the time to bring you a more precise locator. With guaranteed accuracy and no residue.

We offer three styles of matrix to meet all your die cutting applications. The strong adhesive base is there to make sure you make it through the run without losing your crease. Where others will migrate or move during press run time, Channel[®] Creasing Matrix products stay put, giving you the confidence you need to run your job worry free.

For more information give us a call, fax or e mail us and we will give you fast accurate information on how you can make the best quality crease in the fastest most economical way.

*Channel[®] is a registered trademark
Of Channel[®] Creasing Matrix Inc.*

To Order Call: 1-800-451-7373 Fax 866-708-4686

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All three types of matrix offered by Channel[®] Creasing Matrix Inc. are now available with an easy peel side release tape. To keep our products hassle free. Just as the bonding of our locator keeps you from having to clean the matrix before you use it, where others use glue and leave residue. The locator also has a special centering strip that guarantees registration.

As with any matrix the key to good die cutting is in the make ready. The make ready necessary for good creasing is that the plate must be clean and free of oil or debris.



Channel Matrix

Metal backed matrix from Channel Creasing Matrix Inc. is different than most metal backed matrix. We actually extrude our matrix right onto the perforated steel backing, this allows the plastic to penetrate the steel and give it a stronger bond. We also extrude a slight taper to the edges, which helps to ease the passage of the sheet as it crosses over the matrix.

Metal backed matrix once used in all applications for all types of presses has now found a place in the industry predominantly on cylinder presses. This is due to the extra rigidity it gives the channel when working on a cylinder that may be worn. Whereas, the film-backed products will follow the contour of a worn plate, metal backed matrix will remain rigid. Many times a flexible matrix used across a cylinder will expand with the curve of the cylinder. Metal backed matrix will not do that and will retain the channel width.

Metal backed matrix is also good on hand fed presses. Although not necessary on hand fed presses it is many times the preferred matrix because of old habits or just cost. Metal matrix tends to be less expensive than the Mylar based counterparts.

A metal backed matrix is generally a short to medium run length matrix. It is color coded for quick identification of size. Each color represents the various sizes available and it comes in the four different types found on page 8.

The charts in this catalog will show you the size of matrix recommended based on the material thickness you are using. You will also see the size of crease rule recommended based on the cutting rule height you choose.

Marathon Matrix VF



Marathon Matrix VF™ is a vulcanized fiber matrix that allows you long runs with minimal base material. Allowing you a lower profile (than the conventional metal based matrix) for faster run speeds. Self-locating using a thermal bonding process, there is no messy residue from the adhesive after detaching the locator.

The strong adhesive on the bottom will not allow the material to migrate and it will allow you to use a cut crease rule or a perforating score rule without having to pull the membrane. Many times a customer wants a crease to be made with a cut-crease knife. Too often a lot of time is wasted in setting up this type of crease. With marathon matrix the hassle is no longer an issue. The strong adhesive does not allow for dust build up in the channel so your crease remains clean and debris free.

Marathon is manufactured for long run or multiple repeat jobs. Unlike the genuine pressboard, vulcanized fiber will withstand the wear and abrasion longer, in most cases, allowing you to run until the job is done. The accuracy with which the channel width is manufactured is second to none.

The numbering system for the sizes correlates to the depth and width of the matrix channel. The first 2 numbers represent the depth of channel and the numbers that follow are representative of the channel width. For example a product that says it is a 2060 is .020" of thickness of Vulcanized fiber and .060" wide in the channel. In some circumstances it may be necessary to have some extra depth, the recommended extra depth is provided in the chart. If other sizes are necessary please contact us for availability.

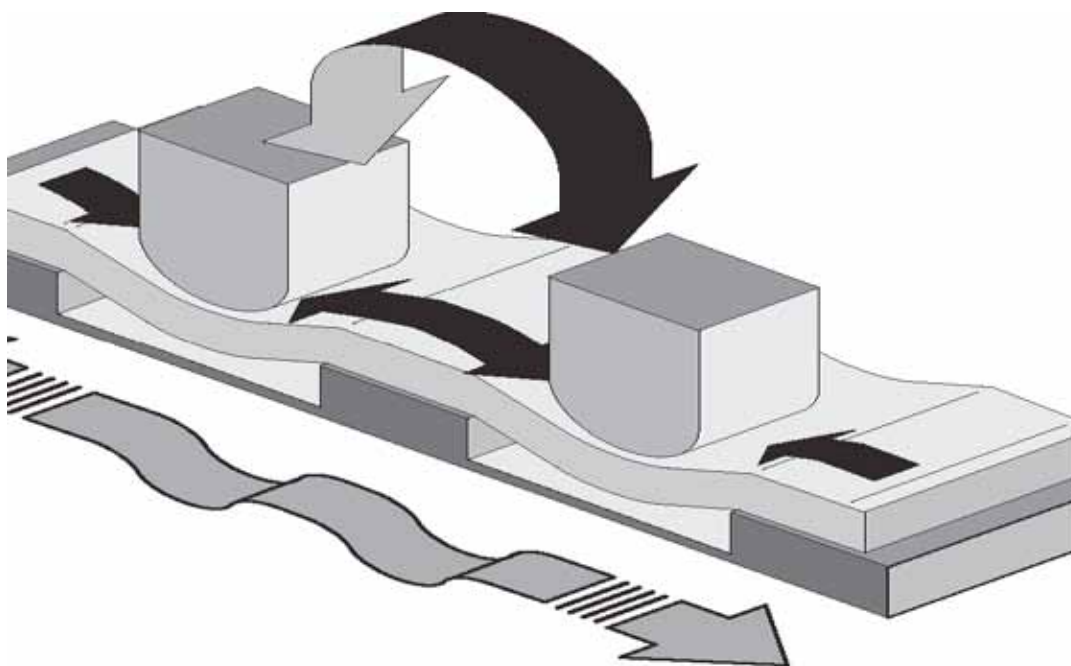
Being an American manufacturer we have the ability to respond to your request immediately and figure out the best solution for your die cutting needs.

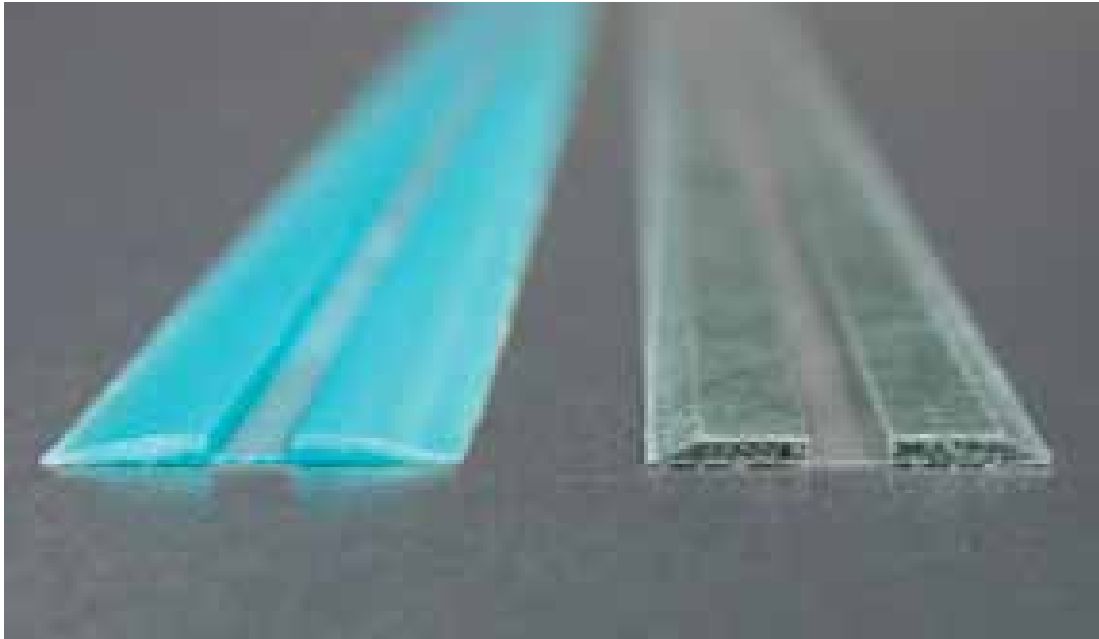


Plastrix ¼” and ½”

Plastrix is a one-piece extruded matrix, made of a tough durable ABS plastic. The idea behind Plastrix was to extrude a perfectly tapered matrix that allows you to transfer the matrix from the die and start running your press without the need to tape or skive the lead edge. This allows for faster up and run times. Manufactured with the multiple change over companies in mind. The faster you are up and running the more cost efficient you are on each job. Plastrix reaches the height only at the channel and allows a smooth flow of paper without the distortion that comes with regular matrix. Draw is the effect of the crease rule pulling paper from both sides of the channel as it pushes the paper into the channel.

If you study the profile you will see the overall height is lower than most others thus will also lessen the effects of draw on the final product.





Plastrix being one piece does not allow for the delaminating of the matrix when separating the locator as you can get with some multi-part matrices. Also, the membrane does not split as easily when a double sheet accidentally runs through the press. This is of great benefit when you need to cut the matrix for some reason. You can shave Plastrix all the way to the plate. Where as metal backed matrix can only be shaved down to the metal, not the plate. Most Mylar based materials are of a genuine pressboard and have some inconsistency when being shaved. Plastrix is only pure plastic and does not have voids or layers, thus can be shaved more cleanly.

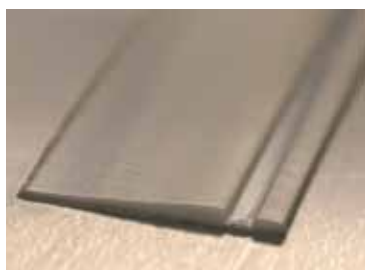
Plastrix, much like the metal-based counterpart, is color coded, with the same colors being used for identification of sizes. However, Plastrix has more sizes available and has all of the same styles as metal backed matrix. However the shoulders at the tip of the channels, on Plastrix are radiused to allow for a smoother bead when dealing with high titanium inked cartons or dry stock. This radius keeps the stock from cracking.

There are some discerning differences between the $\frac{1}{4}$ " and the $\frac{1}{2}$ " sizes. Besides the obvious that one is $\frac{1}{4}$ " wide and the other $\frac{1}{2}$ " wide. The $\frac{1}{4}$ " (.010 membrane) matrix can be used to replace the metal backed matrix without the need for changing the height of the crease rule in a die. The $\frac{1}{2}$ " (.005 membrane) can replace the Mylar based matrices. Both have the tapered edge with the $\frac{1}{2}$ " being more pronounced due to size. This alleviates the need to purchase a matrix with an added tape for ramping or the need to add tape. The savings is in time and when the press gets up and running faster you are saving both time and money.

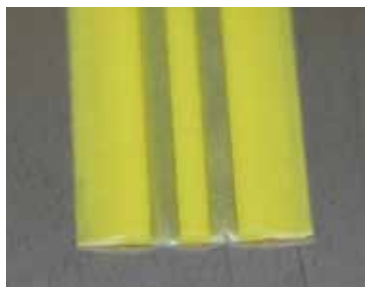
Types of Matrix Available



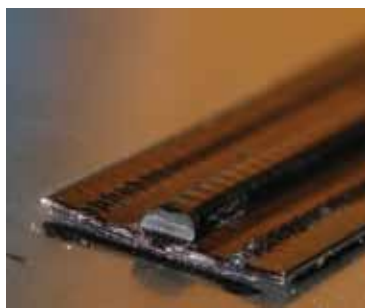
Center crease matrix is used in most cases for creasing materials. This matrix is used in areas where it can be put without interfering with rubber or cutting knives that are close together



Off center matrix is used when a crease is going to be close to a cutting knife such as in a dust flap. The smaller portion goes toward the knife and the larger portion towards the center of the blank. Off center is also used when a third crease is needed near two existing creases, and can be used to crease a double crease when conventional doubles will not do.



Double crease matrix is used in areas where two creases are needed a specific distance apart. Normally used where a spine or capacity crease is necessary. They are manufactured to the standard center to center distances of 1/8", 3/16" and 1/4" . Other sizes can be made by using the off center matrix above. Pocket folders and book spines are the most common uses for double creases.



Reverse crease matrix is normally used when trying to obtain a reverse fold or "Z" fold/accordion fold. The matrix becomes the male and the crease rules become the female that creates the channel.

Sizes available in the styles of matrix

Channel	Marathon	Extra depth	Extra depth	Extra depth	Plastrix 1/4	Plastrix 1/2"
24	1224				24	24
32	1232	1632			32	32
40	1240	1640	2040		40	40
50	1248	1648	2048		45	45
60	1252	1652	2052		50	50
60D	1256	1656	2056	2456	55	55
67	1660		2060	2460	60	60
75	1664		2064	2464	60D	60D
75D	1668		2068	2468	65	65
83	2072		2472	2872	70	70
90	2080		2480	2880	75	75
105	2490		2890	3290	75D	75D
120	28100		32100	40100	80	80
120/6	32110		40110		85	85
120/8	32120		40120		90	90
150-3/4	32136		40136		95	95
150/6	32150-3/4		40150-3/4		100	100
150/8	32150/6		40150/6		105	105
200/4	32200-3/4		40200-3/4		105/4	105/4
200/6	32200/6		40200/6			110
200/8	32200/8		40200/8			120-3/4
250/4	32250/6		40250/6			120/6
250/6	32250/8		40250/8			150-3/4
250/8						200/4
						200/6
						200/8
						250/6
						250/8

Sizes that are followed by a / or – the number following is the size of crease rule that fits the locator.

Sizes with a D indicate a deeper channel.

Metal backed and Plastrix, the numbers designate the channel width in thousandths of an inch. EG. 60 = .060"

The numbering system for Marathon (pg 5) works as follows: the first two numbers are for the height of the vulcanized fiber and the following numbers are for the channel width.

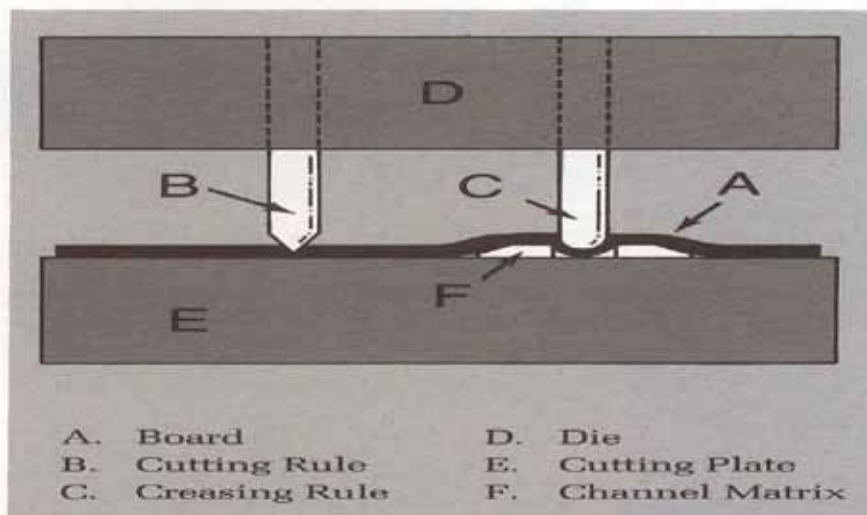
Formulas

Fiber board

The proper formulas for finding creasing channel width and crease rule height has varied over the years. With much research and development we have discovered the formula that fits most if not all the applications for creasing both fiberboard material as well as corrugated materials and plastics*. When you use the charts on the following pages you will see the results we get and suggestions we make for different board thickness and the crease rule heights based on the various thickness as well as the type of matrix being used. The formula we used was the following:

1. Formulas for finding channel width and crease rule heights for fiber board:
 - a. (Paper board thickness x 1.75) + Crease rule thickness = channel width
($A \times 1.75$) + C = CW)
 - b. (Cutting rule height – paperboard thickness) – membrane thickness = crease rule height. ($(B - A) - M$ = C height)
 - **On cylinder presses you must reduce crease rule height another .005” around the cylinder**
 - Membrane heights (M)
 1. Channel matrix = .010”
 2. Marathon matrix = .005”
 3. ½” Plastrix = .005”
 4. ¼” Plastrix = .010”

Remember paper varies and by following the above formulas you will find that the answer you get will be the most reliable. The trouble shooting part of this catalog will deal with times you may need to change channel depth or width.



The Crease rule heights on the chart are using .937 and .918 cutting rule

Formulas

Corrugated board

2. Formulas for finding channel width and crease rule heights for corrugated board:
 - a. (Crushed thickness x 2) + Crease rule thickness = channel width
 $(A \times 2) + C = CW$
 - b. (Cutting rule height – Crushed thickness) – membrane thickness = crease rule height. $((B - A) - M = C \text{ height})$
 - Membrane heights (M)
 1. Channel matrix = .0010"
 2. Marathon matrix = .005"
 3. ½" Plastrix = .005"
 4. ¼" Plastrix = .010"

The chart on page 14 is for using matrix on corrugated material. Please note, due to the variations of materials used to make the different fluted materials, we are using crushed thickness to decide which matrix to use. Crushed thickness can change even on the same fluted material due to changes in liner thickness and/or medium thickness as well as the additions of laminates or labels.

Please note that it is essential that we determine the crushed board thickness by the use of either of the following methods:

1. Crushing the corrugated with a micrometer gauge (not a dial caliper since they have a tendency to cut through the paper) The gauge should have flat edges to crush the material properly.
2. Find the size of the liners adding them together with the medium and any laminate if appropriate.

Note this formula is different than that used in fiberboard, it is not necessary to delaminate corrugated paper as it is with fiberboard.

Although you will find this chart to be fairly accurate in calculating the size of the matrix you need, there are variations in board quality, moisture content, and coatings that affect the bending characteristics when these exceptions arise some experimentation may be necessary. Fast, accurate additional help can be obtained by calling [800-451-7373](tel:800-451-7373).

CHART FOR CREASING MATRIX AND CREASE RULE HEIGHT FIBERBOARD

		Paper thickness	0.006	0.008	0.01	0.012	0.014	0.016	0.018	0.020
matrix type	Rule pointage									
CHANNEL	1PT		24	32	32					
CHANNEL	1-1/2 PT		32	32	40	40	50	50	50	
CHANNEL	2PT		40	40	50	50	50	60	60	67
CHANNEL	3PT									
CHANNEL	4PT									
CHANNEL	6PT									
CHANNEL	8PT									
Crease rule height for .918 cut			0.902	0.900	0.898	0.896	0.894	0.892	0.890	0.888
Crease rule height for .937 cut			0.921	0.919	0.917	0.915	0.913	0.911	0.909	0.907
1/4 PLASTRIX	1PT		24	32	32					
1/4 PLASTRIX	1-1/2 PT		32	32	40	40	45	50	50	
1/4 PLASTRIX	2PT		40	40	45	50	50	55	60	65
1/4 PLASTRIX	3PT									
1/4 PLASTRIX	4PT									
1/4 PLASTRIX	6PT									
1/4 PLASTRIX	8PT									
Crease rule height for .918 cut			0.902	0.900	0.898	0.896	0.894	0.892	0.890	0.888
Crease rule height for .937 cut			0.921	0.919	0.917	0.915	0.913	0.911	0.909	0.907
1/2 PLASTRIX	1PT		24	32	32					
1/2 PLASTRIX	1-1/2 PT		32	32	40	40	45	50	50	
1/2 PLASTRIX	2PT		40	40	45	50	50	55	60	65
1/2 PLASTRIX	3PT									
1/2 PLASTRIX	4PT									
1/2 PLASTRIX	6PT									
1/2 PLASTRIX	8PT									
Crease rule height for .918 cut			0.907	0.905	0.903	0.901	0.899	0.897	0.895	0.893
Crease rule height for .937 cut			0.926	0.924	0.922	0.920	0.918	0.916	0.914	0.912
MARATHON	1PT		1224	1224	1232					
MARATHON	1-1/2 PT		1232	1232	1240	1240	1648	1648	2052	
MARATHON	2PT		1240	1240	1248	1248	1652	1656	2060	2064
MARATHON	3PT									
MARATHON	4PT									
MARATHON	6PT									
MARATHON	8PT									
Crease rule height for .918 cut			0.907	0.905	0.903	0.901	0.899	0.897	0.895	0.893
Crease rule height for .937 cut			0.926	0.924	0.922	0.920	0.918	0.916	0.914	0.912

MATRIX AND CREASING HEIGHT USING CRUSHED THICKNESS FOR CORRUGATED

		Crush Thickness	0.026	0.028	0.030	0.032	0.034	0.036	0.038	0.040	0.042	0.044	0.046
Type of Matrix	Rule Pointage												
CHANNEL	3		90	105	105	105	105	120	120	120			
CHANNEL	4		105	120	120	120	120	120	120	150	150	150	150
CHANNEL	6		150	150	150	150	150	150	150	150	200	200	200
CHANNEL	8		150	200	200	200	200	200	200	200	200	200	200
Crease height using .918 cut			0.882	0.880	0.878	0.876	0.874	0.872	0.870	0.868	0.866	0.864	0.862
Crease height using .937 cut			0.901	0.899	0.897	0.895	0.893	0.891	0.889	0.887	0.885	0.883	0.881
1/4 PLASTRIX	3		95	100	105	105							
1/4 PLASTRIX	4		105										
1/4 PLASTRIX	6												
1/4 PLASTRIX	8												
Crease height using .918 cut			0.882	0.880	0.878	0.876							
Crease height using .937 cut			0.901	0.899	0.897	0.895							
1/2 PLASTRIX	3		95	100	105	105	110	110	120	120			
1/2 PLASTRIX	4		110	110	120	120	120	120	150	150	150	150	150
1/2 PLASTRIX	6		150	150	150	150	150	150	175	175	175	175	175
1/2 PLASTRIX	8		175	175	175	175	175	200	200	200	200	200	200
Crease height using .918 cut			0.887	0.885	0.883	0.881	0.879	0.877	0.875	0.873	0.871	0.869	0.867
Crease height using .937 cut			0.906	0.904	0.902	0.900	0.898	0.896	0.894	0.892	0.890	0.888	0.886
MARATHON	3		2890	28100	32100	32110	32110	40120	40120	40120			
MARATHON	4		2890	28110	32120	32120	32120	40136	40136	40136	40136	40150	40150
MARATHON	6										40150	40200	40200
MARATHON	8											40200	40200
Crease height using .918 cut			0.887	0.885	0.883	0.881	0.879	0.877	0.875	0.873	0.871	0.869	0.867
Crease height using .937 cut			0.906	0.904	0.902	0.900	0.898	0.896	0.894	0.892	0.890	0.888	0.886

0.048	0.050	0.052	0.054	0.056	0.058	0.060	0.062	0.064	0.066	0.068	0.070	0.072	0.074	0.076	0.080
150	150	150	150												
200	200	200	200	200	200	200	200	200	200	250	250	250	250	250	250
200	200	200	250	250	250	250	250	250	250	250	250	250	250	250	250
0.860	0.858	0.856	0.854	0.852	0.850	0.848	0.846	0.844	0.842	0.840	0.838	0.836	0.834	0.832	0.828
0.879	0.877	0.875	0.873	0.871	0.869	0.867	0.865	0.863	0.861	0.859	0.857	0.855	0.853	0.851	0.847
150	150	150	175												
175	200	200	200	200	200	200	200	225	225	225	225	225	250	250	250
200	225	225	225	225	225	250	250	250	250	250	250	250	250	250	250
0.865	0.863	0.861	0.859	0.857	0.855	0.853	0.851	0.849	0.847	0.845	0.843	0.841	0.839	0.837	0.833
0.884	0.882	0.880	0.878	0.876	0.874	0.872	0.870	0.868	0.866	0.864	0.862	0.860	0.858	0.856	0.852
40150	40150	40150	40200												
40200	40200	40200	40200	40200	40200	40200	40200	40200	40200	40200	40250	40250	40250	40250	40250
40200	40200	40200	40250	40250	40250	40250	40250	40250	40250	40250	40250	40250	40250	40250	40250
0.865	0.863	0.861	0.859	0.857	0.855	0.853	0.851	0.849	0.847	0.845	0.843	0.841	0.839	0.837	0.833
0.884	0.882	0.880	0.878	0.876	0.874	0.872	0.870	0.868	0.866	0.864	0.862	0.860	0.858	0.856	0.852

Reverse Crease formula:

Size	Amount to subtract from cut rule height	Distance between creases
2/75	.050"	.075"
3/105	.050"	.105"
4/120	.075"	.120
4/200	.075"	.200"
6/200	.080"	.200"
6/250	.080"	.250"

Formula for creasing plastic with matrix:

Plastic will vary and the recommendation for creasing a plastic sheet material is:

$$(\text{Material thickness} \times 1.75) + \text{crease rule thickness} = \text{channel thickness}$$

$$(\text{Cutting rule} - (\text{material thickness}/2)) - \text{membrane thickness} = \text{crease rule ht.}$$

On a material that has a corrugated make up you would use the same formula that you used when creasing corrugated. This is because the optimum crease is one that the integrity of the material was destroyed without destroying the material as a whole.

There are also some variations with creasing plastic that depend on the material and the temperature of the material or the die or the platen.

Other Channel products!



ACCU-SHIM: A stainless steel shim with adhesive attached has a multitude of uses but predominantly used on the back of cutting dies and sometimes on make ready sheets. Shim is 5/16 wide.

AVAILABLE IN:

.002" thick 33' and 100' lengths

.005" thick 33' and 100' lengths

FIT: is a carbon steel shim tape that is .0015" thick, 33' in length



CUTTING PLATE CLEANER II: cleans easily, does not leave an oily residue.

Available in 16oz spray bottle, one, five and fifty-five gallon containers. Cleans in one application no need to go over the area with a secondary cleaner afterwards.

Troubleshooting

This guide is intended to help solve problems you may have with your creasing operation and deter the effects that occur from problems with creasing. In most cases the answer to the problem can be found by plugging your numbers into the formulas. The answers you receive from the formula may not be 100% for all applications or variations in board but they will normally cover most applications.

Problem

Suggested Solution

Board ruptures on press

Check calculations for crease rule height.

Matrix breaks on press

Either the crease rule is not correct in height or channel width is not correct.

Board sticks at miters

Make sure miters are not tight together back off about 1/16. Sand the edges slightly to ease pinching effect.

Matrix moves or migrates

Plate is not clean or oil free.
Clean plate to remove all dirt, film and oils.

Matrix comes off steel when cutting

Make sure to use a cutter with an anvil and not a shearing mechanism such as scissors.

Board cracks after it goes to folder

Check the formulas on the crease rule height. This problem is generally caused by not enough impression/ delaminating of fiberboard.

Troubleshooting

Problem

Suggested solution

Nicks break on press

Possible that the height of matrix is too high and creating too much draw. Check Rubbering technique.

Angel hair on board

Possible that the height of matrix is too high and creating too much draw. Check Rubbering technique.

Ink feathers on bottom of board when stripping or blanking

Check crease rule height for potential bottoming out in channel not allowing the cut rule to fully penetrate board.

Board is dry and cracking when using normal matrix size

Use next wider size of matrix.

Board does not stay folded. Keeps straightening out.

If you are using the matrix size you normally use, you may have to go one size smaller if board is wet. If not check formula for crease rule height and matrix width.

Cracking on lead edge of cylinder press

Make sure die is built with crease rule in vertical direction being .005" lower.



HAND MITER PLIERS register an exact mitered cut. Larger blade cuts the easy lift tape. Heavy duty enough to cut the largest metal-based matrix and gentle enough to cut small pieces. The guide is designed to accept all types of matrix in varying widths. Uses a blade and anvil to cut as opposed to a shearing type cutter. It is never recommended to use a shearing type cutter when cutting matrix!



MITER BENCH PRESS: much like the hand miter cutter the bench press is a male to anvil cutter. With the cut being made off the center of the anvil. This is done to allow the user to turn the anvil around when the anvil gets worn, you can also turn the anvil over and use it in two positions giving you a total of 4 usable areas to cut against making anvil replacement unnecessary for years to come. Unlike some of the other bench top miter cutters that use male female knives, the CCM bench gives a supported surface to cut against where as male female cutters will roll the bottom materials sometimes causing separation from the base.

The bench press is generally used with multiple up die using matrix and you need many of the same parts. The scale (24") allows you accurate cuts with repeatability. The scale is read from the back of the stop (not the front edge that touches the matrix). The quick release thumbscrew allows for fast change of sizes. The blade will cut the lead and trail edge of the matrix with a mitered cut.

The intention of the catalog was to give you as much useful information as possible. We do realize that not every possible problem or scenario was discussed but we do feel that the majority of creasing problems encountered in the die cutting process can be solved with the information contained in this catalog. The trouble-shooting guide was intended to bring to light some of the possible problems and the solution to that problem, provided all other aspects of the die and die cutter are in correct order. Sometimes there are variables that will not allow you to solve the problem as quickly but not to worry, the solution is usually only a phone call away **800-451-7373**.

Please feel free to call us an anytime, our staff can answer the majority of questions over the phone and if this is not a formidable solution, one of our technical sales staff can visit your location for a face to face, hands on conference. Lastly, we always recommend that you communicate with the people making your dies. Share this catalog with them, that way you are both on the same page and understanding, which would be one less problem and a faster make-ready.

Channel[®] Creasing Matrix Inc.

MISSION STATEMENT

PROVIDING TOP QUALITY PRODUCTS, SERVICES AND TECHNICAL ASSISTANCE THAT MEETS OR EXCEEDS OUR CUSTOMERS EXPECTATIONS. OUR ABILITY TO DO THIS COMES FROM THE INTERNAL AND EXTERNAL TRAINING RESOURCES, WHILE CONTINUALLY IMPROVING GROWTH AND PROSPERITY FOR OUR CUSTOMERS, EMPLOYEES AND COMMUNITY.

If you have any questions about Channel[®] Creasing Matrix Inc. products or the contents of this catalog please call us at 800-451-7373 or e-mail us at sales@ccmdie.com.