***Confidential Report***

Underground Kydex Secrets
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Underground Kydex Secrets

In the last few years, Kydex holsters have become more and more popular for guns and knives, taking the place of leather for overall popularity.

This rise in popularity comes from the ease of working with Kydex, making it a great material for cottage industry manufacturers working out of their homes and do-it-yourselfers who want the fun of making their own.

Kydex is a thermoplastic acrylic-polyvinyl chloride. The word “thermoplastic” means that it is a plastic that can be heat formed.

The rest of that gobbledygook refers to the specific chemical composition of the plastic.

To mold Kydex, it is heated to a specific temperature and then formed around a mold. For the sake of making your own gun or knife holster, you can use the gun or knife itself.

Professional holster makers use plastic blanks, rather than using the gun. While there is little chance of damaging the gun in the process of making the holster, most guns today have polymer frames which are best not heated.

There are several ways of molding the Kydex around the gun or mold, but in this report we are going to show you the most simple, using what is known as a book press.

Vacuum forming is what is usually done by manufacturers of parts for airplanes and transit buses, but that requires additional equipment.

Originally, Kydex was designed for use in molding the parts used to finish out the interior walls of airplanes. All those curving plastic parts that make airliners look so nice on the inside are made of Kydex or a similar material. The manufacturer, Kydex LLC, has expanded their horizons, providing their material to a wide variety of other industries for use in equipment enclosures, furniture and even building interiors.

Using it for holsters is actually only a very small amount of the overall use of Kydex.
Kydex is sold in three thickness of sheets, in a wide variety of colors. You can even get a custom color made, if you are willing to buy 1152 square feet of it. That’s enough to make over 2,000 holsters. The three standard thicknesses are:

- **.060** – This is the most flexible, giving great definition. Most holsters are made out of this thickness, although some manufacturers go for a thicker material for greater durability.

- **.080** – Medium thickness, combined the advantages of the other two thicknesses.

- **.093** – Provides the most durable holster, although there is the least definition. Holsters made with this thickness of Kydex are likely to have greater gun retention, due to the increased stiffness of the material.

Kydex comes already textured, preventing the need for polishing and fine finishing. About the only part of the holster that requires any true finishing work is the edge, where you will cut it. Even then, if you don’t want a shiny finish on the edge, you can save yourself a lot of work.

Due to how easy Kydex is to mold, you can make holsters and sheathes for literally anything you can think of; cell phones, knives, multi-tools, tomahawks, entrenching tools and compasses can all be housed in Kydex holsters.

The only restriction is your imagination.

Plus, with the incredible popularity and thousands of uses for Kydex – there is even an opportunity now to cash in on this trend and create a nice income stream to make some money from a rewarding hobby and skill (we’ll cover this at the end of the report).

Let’s get started!
What Will You Need in Order to Make Your Holster?

Although making Kydex holsters isn’t overly complicated, there are a number of materials and tools you will need. Most of the necessary tools are fairly common tools that you would have if you are a do-it-yourselfer.

The main thing you will need to buy are the Kydex itself, as well as the other materials used in the making of the holster.

If you are only going to make one holster, then you will be better off buying a kit. This will include all the materials you need for a fairly reasonable price.

However, if you are going to make a number of holsters, the kit isn’t all that good a deal; you’ll be better off buying the individual materials.

If you decide to buy the individual materials, rather than buying a kit, you will need:

- **Kydex** – The Kydex is available in a wide variety of colors, in the three thicknesses mentioned above. For your first try, I’d recommend using thinner material.

- **Rivet eyelets** – Although there are rivet eyelets made for each size of material, you can use the rivets designed for the .093 thick material for all three thicknesses. One-quarter inch diameter rivets are the most common for gun
holsters and 3/16 inch rivets are used for knife and other small holsters. These are available in black, brass or chrome finish.

- **Belt loops** – There are a wide variety of belt loops and clips available for use in making Kydex gun holsters. Many of these readily adapt to use for cell phones and other devices. Typically, they come with the mounting hardware, although some do not. Be sure to check the listing to make sure that it comes with adequate hardware before buying.

- **Barrel screws (Chicago screws)** – These are a two part screw and barrel, designed for mounting belt loops through the rivets.

There are a number of sources for buying Kydex and the other materials needed for making Kydex holsters. Of these, the two largest suppliers, with the best selection are:


Decorative studs, medallions or snaps can be added to a Kydex holster, although it is not common. These are available from the same sources that you can get the materials from.

In addition to the materials for your Kydex holster, you will need a variety of fairly common tools. These don’t need to be the “best quality” tools, as you will not be putting them under a lot of stress.

If you need any of these tools and do not have them, you might try checking with Harbor Freight; they sell a wide variety of inexpensive tools.
• **Ruler** – For measuring the material and laying out the holster. Any ruler will do, although a transparent one is easier to work with.

• **Grease pencil or soapstone** – For marking the cutting lines on the Kydex.

• **Utility knife** – For rough cutting the Kydex.

• **Toaster oven** – You have to heat the Kydex to a hot enough temperature to form it. Some use a heat gun for this, but that is very hard to do, as you need both hands to work with the Kydex. If you don’t have a toaster oven, a regular oven will work. You will not harm the oven in any way by using it for this project.

• **Cookie sheet** – To put the Kydex on in the oven.

• **Heat gun** – This is not absolutely necessary, but useful for final adjustments to the holster.

• **Infrared contact free thermometer** – Probably the most important piece of equipment you can have for the project. The Kydex needs to be heated to an exact temperature and this is the only way that you can verify that it is at the right temperature for working with.

• **Press** – The Kydex needs to be clamped together with whatever it is being molded around to cool. You can either buy a press or make one. I will discuss how to make one later in this report.

• **Scroll saw** – For cutting out the final edges of the holster. If you don’t have a scroll saw, a handheld jig saw can be used, although it will be much harder to work with. Another option is to use a coping saw.

• **Belt sander** – To clean up the edges of the two molded pieces of Kydex and make them match each other. This is very important. A handheld belt sander can be used in place of a stationary one, if it can be turned upside-down and mounted in a vice. A vibratory sander will not work well, as it doesn’t remove material fast enough.

• **Drill press** – To drill the holes for the rivets. A handheld drill can be used if a drill press is not available.

• **Rivet setter** – This is the one piece of specialty equipment you will need to buy. Both of the suppliers listed above provide rivet setters for both 1/4” and 3/16” rivets. Without it, there is no way of properly forming the rivets.
• **Arbor press** – To use with the rivet setter, curling the bottom lip to curl over and causing it to lock. If you don’t have an arbor press, a drill press, large clamp or vice can be used. It is also possible to strike the rivet setter with a hammer, although this must be done carefully so as to not damage the rivets.

• **Buffing wheel** – This is not an absolute requirement, although if you want the edges of your holster to be very smooth, you will need it. Buffing wheels typically come with two soft wheels; you should replace one of them with a sisal wheel. This is coarser and will clean up the edge better. If you don’t have a buffing wheel, a drum sander mounted in a drill or drill press will accomplish almost the same thing, although it won’t truly polish the edge of the plastic.

Professionals use fake guns and knives, called blanks, for making their holsters. However, you can accomplish the exact same thing by using the gun or knife that you want to make a holster for.

If you are using a polymer framed gun, be sure to insert a magazine in the magazine well, to support it and prevent warping of the mag well.

Let’s talk about one of the most important pieces of equipment you’ll need next ...

**Making a Press**

The press is needed to cause the Kydex to form around the gun or other object that you are making the holster for. While heating the plastic makes it pliable so that it will form, something has to hold it in the form you want while it cools.
A fair amount of pressure is needed, in order to assure that the Kydex forms accurately to the shape of the object that will be in the holster. The more pressure used, the greater definition of the detail of the object.

A press doesn’t have to be complicated to be effective. You can make an adequate press out of two pieces of plywood and two pieces of foam rubber. You sandwich the Kydex and mold between the layers of foam and plywood, in the order of:

- Plywood
- Foam
- Mold (gun)
- Kydex
- Foam
- Plywood

Since only one piece of the Kydex is molded at a time, making one half of the holster, the mold is placed on top of the Kydex, so that you can locate it exactly as you want.

If you were to place the Kydex on top of the mold, it might end up being twisted slightly. When the other side of the holster is molded, be sure to turn the gun over to the other side.

Once everything is put together it needs to be clamped as tight as reasonably possible. Bar clamps are the best way of doing this, especially the type that slide quickly before being screwed tight. Another option is large C clamps or even a vice to hold it together.
While any high density foam rubber will work for the press, most people use “Kydex Sheath/Holster Making Foam” available from the same suppliers. This is a black, high density, neoprene foam. The foam can be purchased in 12” x 24” sheets, making it ideal for a 12” x 12” press. The foam will not last forever, as the heat from the Kydex damages it. You can make a number of holsters from one set of foam, but when it starts to crush, you will need to replace it.

It is not absolutely necessary, but many experienced holster makers say that covering the foam with simple cotton material, like that which is used for pillow cases. This allows the Kydex to slide over the foam more smoothly, preventing problems while molding.
Steps to Forming a Holster

Making a Kydex holster is a fairly involved process, with a lot of steps; however, none of the steps are very complicated. The material and the design are very forgiving, in the case of error.

If the Kydex itself doesn’t mold like you want, you can reheat it and mold it once again. That’s one of the beauty’s of this system; the ability to salvage any mistakes and turn them into victories.

Your first Kydex holster may be a bit challenging to make, simply because it is the first time you’ve done it. You should see the first one as a learning experience and expect it to take longer. Once you’ve finished that one however, you’ll be able to do them much faster and easier.

1. Design how you want to design the holster – Kydex holsters can take on literally any design you want them to. I’ve seen everything from high-rise pancake holsters to drop-leg thigh holsters. There are a few things you want to keep in mind with your design:
   o The closer the rivets are to the molded part of the holster, the more retention the holster has for the gun.
   o The wider the holster is, the harder it is to conform it to your body.
   o You want the holster to cover the entire trigger guard, so as to prevent your finger from inadvertently entering the trigger guard when drawing the gun.
   o The handle of the gun needs to be accessible, with no part of the holster blocking your ability to get a good grip on it.
   o Determine if you want the gun’s muzzle to be visible below the holster or not and size your material accordingly.
   o Many people like to angle their holster forward, to make it easier to draw quickly.

2. Cut the Kydex to fit the overall plan for the holster, making it slightly oversize to allow for the material used by the bends as the Kydex molds around the gun. You’ll lose roughly an inch of material width to that. The easiest way to cut it is to score the Kydex with a utility knife and snap it off. Don’t worry about the
edge being rough; you’ll clean that up later. While both pieces need to be the same width, they don’t need to be the same height. Often, the front is smaller than the back.

3. Line up the gun on the piece of Kydex which will be used for the back of the holster and draw the outline on what will end up being the inside of the holster. The outside is the textured side and the inside is smooth. You can draw on the Kydex with a China marker (grease pencil) or soapstone. I prefer soapstone as it is much easier to wipe off.

   o Note: We are going to mold one half of the holster at one time. While it is possible to mold the two halves together, it is much more difficult and there are much greater chances of error.

![Image of Kydex and gun]

4. Heat the Kydex in an oven; toaster ovens work great for this. However, don’t trust the temperature control of the oven, as it might not be accurate. The heated temperature of the Kydex is important, as it will affect how well it molds. If it is too cold, it won’t provide good definition of the gun, if it is too hot, it will over-define, squeezing material out of the high points and weakening the holster. Don’t preheat the oven before putting the Kydex in it, as it can cause the Kydex to shrivel. The heated Kydex needs to be at:

   o 350°F for 0.060 thick material
   o 370°F for 0.080 thick material
   o 380°F for 0.090 thick material

Use the infrared thermometer to periodically check the temperature of the Kydex as it is heating, in order to ensure that it does not overheat. At no time
should the Kydex reach a temperature exceeding 385°F for molding. Temperatures in excess of 400°F will damage the Kydex.

This piece of Kydex was heated too rapidly, causing the edges to curl and the sheet to shrink. Notice how the left part of the Kydex is not as wide as the right. The piece of Kydex started off square.

5. While the Kydex is heating, preheat both the top and bottom foam mold pieces, as well as the gun you will be molding the Kydex around with a heat gun. It can also be heated by placing it on top of the toaster oven. This will prevent the mold from drawing the heat out of the Kydex too quickly, shortening the working time.

6. Place the bottom foam piece in the molding press, heated side up. Pull the Kydex out of the oven, set it in the bottom of the press and align the gun on the Kydex, to match the outline that you had drawn on it. Put the top piece of foam and the top of the press on and clamp it down. Tighten the clamps as much as practically possible; the more pressure, the better.

Note: If you are making a holster or a polymer framed gun and using the gun as the mold, place an empty magazine in the gun, to ensure that the heat and pressure do not deform the magazine well in any way.

7. Allow the molded piece of Kydex to cool in the press for 10 to 15 minutes, before loosening the press. Please note that as long as the Kydex is warm, its shape can alter. Turn off the oven and allow it to cool as well.

8. Once the holster half has cooled, you can loosen the clamps and remove it from the molding press. Check the quality of the molding and verify that the position
of the gun is where it should be. If the gun moved or you didn’t clamp the press
tightly enough and the holster half isn’t deep enough, this is the time to redo it.

Please note that if you put the Kydex back in the oven, it will return to its
original flat shape and be ready for remolding. While you can’t do this
indefinitely, you can rework the same piece of Kydex several times, until you
are satisfied with the quality of your piece.

9. With the rear holster half cool, you can now lay out the bottom line of the
holster for rough cutting. Simply determine where you would like the bottom of
the holster to be and draw a line. Draw a line for the top of the holster back as
well, keeping in mind the location of your belt loops or mount and any material
you want to have on the back of the holster to keep the gun from rubbing
against your body. Typically, the back (inner side) of the holster rides higher
than the front (outer side). However, you don’t want to cover the handle in any
way, as that will impede your draw.

10. Rough cut the bottom with a utility knife and snap off the excess material. Do
not rough cut the top edge with the utility knife, as that will be cut with the
scroll saw. Typically, the sides do not need to be cut, as most people use the
original cut dimensions of the sides; however, if your holster is too wide, they
can be cut in the same way as the bottom. Keep in mind that you need enough
room for the rivets and to allow the holster to flex slightly when drawing.

11. Lay the material for the front half of the holster up against the back half and
mark the limits of where you want the gun to sit so that the two halves will
mate up properly. Once you have marked it, separate the halves, place the gun
on the Kydex for the front half and outline the gun on the inside of it.

12. Repeat steps 3 through 8 for the front half of the holster.

13. Once the front half of the holster has cooled, place the two halves together,
with the gun in between to positively locate them in relation to one another.
You can then transfer the edges of the back half to the front half, allowing you
to rough cut the bottom and sides (if necessary) and lay out the top edge.

14. Cut the top edge of both the back and front pieces with the scroll saw. Use a
slow speed on the saw, with a fine blade, so that your cut is as smooth as
possible and you don’t overcut.
15. Clamp the two sides together with a number of small spring clamps, with the gun in between. It is important that they not be able to move in relationship with each other.

16. Sand all the edges on the belt sander, removing and replacing the clamps as you work your way around the holster. Pay constant attention to make sure that the two pieces match up at all times.

17. If you have a sisal wheel on your buffing wheel, use it to clean up and deburr the edges of both pieces. If you do not have a sisal wheel, you can accomplish the same thing by scraping the edge of the plastic with a sharp utility knife or hobby knife. Do not try and cut the plastic off, but rather hold the knife at a 90 degree angle to the edge of the plastic and draw it along the edge, scraping the edge with the knife.

18. Mark the locations where you are going to install the rivets to hold the two halves of the holster together. Once again, you should have the two halved clamped together with the spring clamps, so that they are located exactly right. Start with the locations for any rivets that are needed to go with the belt loops or clips. Typically, rivets are spaced about 1/2 inch apart.

19. Drill the holes for the rivets. Since we are using 1/4 inch rivets; that would mean drilling a 1/4 inch hole. If you are using a different size rivet, select the appropriate sized drill bit to match the rivets. You want the rivets to fit snugly in the holes, without having to force them.
20. Deburr the drill holes. The easiest way to do this is with a hand-held countersink. If you don’t have a countersink, the same thing can be accomplished with a larger drill bit, such as a 1/2 inch diameter one. Any burrs left will cause problems when installing the rivets.

21. Separate the two halves of the holster and hand sand the edges smooth to finish them. Any rough edges will be annoying when you are wearing the holster. You also want to ensure that you don’t have any sharp edges, as they can scrape your skin, creating irritation.

22. Final buff the edges of the two halves with a soft buffing wheel to polish. This step is not required, but will make the finished holster look more like it has been professionally made.

23. Clean the inside of the holster before attaching the two sides, to remove any plastic shavings and your guide markings. Apply a very light coating of gun lubricant of the inside of the holster. This will help the gun slide in and out smoothly.

24. Clean and lubricate the rivet die before using. The rivets are made of very thin aluminum and can tear when being seated. Paint or debris on the die can increase the chance of tearing. Lightly oiling it will reduce the friction on the rivet, which helps prevent the chance of ripping.

25. Rivet the two halves of the holster together using the rivet die. The rivets are inserted through the front of the holster, and the crimping action takes place on the back of the holster, where it will be less visible.
The die is intended to be used with an arbor press. If you do not have an arbor press, there are several other options you can consider; such as using a drill press as an arbor press, using a large clamp as a press or using a vice as a press. You should not use a hammer to seat the rivet unless absolutely necessary, as you will probably crush the rivet.

If a rivet becomes damaged in seating, it can be removed and replaced. The best tool for this is the specialty pliers used for removing automotive push-pins used to install interior plastic trim panels. KD Tools makes an excellent one; part number KD3888. With it, you can crush the back of the rivet and pull it through from the front. The same can be done with regular slip-joint pliers, but not as easily.

26. At this point, the retention force of the holster can be tested. The pistol should snap into place when inserted and should require some force to remove. Even so, some holsters will have too much retention force. There are two parts of the holster that are likely to cause this; the trigger guard and the ejection port. If the retention force is too high, these two areas can be relaxed a bit to reduce it.

To relax the tension, use a heat gun with a narrow nozzle to heat the areas of the ejection port and the trigger guard. Be careful that the rest of the holster doesn’t get heated in the process. As the Kydex reaches the normal working temperature, it will start to flatten in the heated area, pulling out of the trigger guard or ejection port. This will reduce the amount of retention.

27. As made, the holster is flat across its width. To make the holster conform to the body, it can be curved. To do so, capture the riveted edge of the holster in a vice and heat the area between the rivets and the gun’s contour with a heat gun. Once again, it is important to be careful to control where the heat is applied.
Once the Kydex approaches the working temperature, it can be bent to conform with the person’s body.

28. The final step in creating the holster is to attach whatever sort of belt clips are going to be used with the Chicago screws. These screws will fit inside the 1/4 inch rivets, so that no additional holes have to be drilled. If the type of clip you have selected doesn’t mount with Chicago screws, the hardware will be supplied with the clip.

While the steps given in this guide mention making a holster for a gun, the same basic steps are used for making any other type of holster, whether a knife sheath, a magazine holder or a cell phone holster. The only real difference is that there is less conforming of the Kydex to the device, than there is when making a gun holster.

Knife sheathes and some other types of holsters can be made out of a single piece of Kydex, rather than the two-piece method shown here. In those cases, the single piece of Kydex is folded over and only riveted on the open side. This works well for knife sheathes, allowing a smaller overall size. When a one-piece knife sheath is made, the folded side is along the back of the knife blade, just as it would be for a leather sheath.

To make a one-piece sheath follow the directions above, with the following changes: heat the Kydex like before and place it in the press. Place the knife on the Kydex, matching the guide marks that you made. Then fold the Kydex over the blade and clamp in the press. Trimming the holster is done on the scroll saw, once the Kydex has cooled.
Making Money with Kydex

One nice thing about Kydex is its versatility. You can make just about anything you can imagine with it.

In actuality, making holsters is only a very small part of the overall usage for this amazing material. It is primarily used for molding interior trim panels for airplanes and transit busses.

When used for making holsters, Kydex is highly customizable. Each user can design their holster to match their personal needs, adjusting the amount of retention, the angle of the gun, colors, mounting and height. That makes Kydex holsters a custom market, untouched by mass production.

While there are many other types of holsters which are mass produced, Kydex ones can’t be.

Once you’ve made yourself a Kydex holster, you can easily switch over to making them for your friends and acquaintances.

Most gun stores love the idea of being able to offer custom holsters to their customers. While that would mean giving a portion of the profits to the gun store, it provides an excellent market, with little time and cost put into the marketing effort.

If you want to manufacture Kydex holsters for sale you should make the investment to have good tools to work with. While using an electric drill to make your own holster may seem fine, you’re better off having a drill press if you are making them commercially.

The other piece of equipment you’ll need for making Kydex holsters commercially is to have molding props that you can use. These are solid plastic fake guns, which have all the details of the actual guns they represent. With them, you don’t need to have the actual gun to work with in order to mold the Kydex holster. There are two brands of molding props available:

- Bluegun
- Multi-Mold
Since these two brands of molding props so closely follow the design of the actual gun, they can also be modified by the addition of the same accessories that are used on the gun.

Tactical lights and laser sights can make a normal holster unusable; but they can easily be added for a Kydex holster, making the holster fit the modified gun perfectly.

If you enjoy the process of making your own holsters ... whether for guns or knives or practically anything that you can think of ... then there is probably a chance you could make them and sell them for other people for a profit too.

Thank you for reading this report.