Stainless Steel Rose from Scrap Metal

by **jaredzeuli** on April 11, 2009

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Intro: Stainless Steel Rose from Scrap Metal

This is a rose sculpture I TIG (GTAW) welded at school. It is made from left-over stainless steel scraps that were straight off the shop floor at my school welding shop. I believe this project embodies the topic of this contest in a few ways. The first and most obvious being that it was completely constructed from scrap metal. And not just typical scrap...the scraps in our shop go through a series of re-uses until they reach a size that is no longer easily used in class and is then shipped to the scrap yard for recycling. I made sure to grab the majority of my scraps from the end bin to make sure the scraps had been re-used as much as possible before I began building with them. Secondly, the topic of my piece is a rose which is an embodiment and symbol of nature's beauty. I dedicated roughly 55 hours of shop time to obtain the final product to replicate that beauty as closely as I could. Lastly, the material I used for the project was stainless steel. I did this to give the final piece a certain level of complexity both visual and inherent. It stands as a icon that something as industrial as steel can be used to create one of nature's softest, most stunning symbols. It also shows that this relationship between industry and nature can be renewable and sustainable...hence the "Stainless" aspect of it.

step 1: Equipment & Materials

Equipment:
- TIG (GTAW) or MIG (GMAW) Welder
- Stationary Belt Sander
- Bead Blasting Cabinet - ***Optional***
- 4 1/2" Angle Grinder with Abrasion/Cutting Wheels
- Bench Grinder - ***Optional***
- Metal Work Bench to Attach Ground Cable
- Bench Vise
- Ball-Peen Hammer
- Vise Grips
- Sheet Metal Sheers
- Dremel Tool with Grinding and Polishing Bits - ***Optional***
- Typical Welding/Fabrication Safety Equipment

Materials:
- 18, 20, or 22ga Stainless Steel Sheet Metal Scraps
- 1/4" Bar Stock (Round or Square)
- Stainless Steel Filler Rod (for TIG)
- Stainless Steel Electrode Wire (for MIG)

step 2: Making the Basic Parts

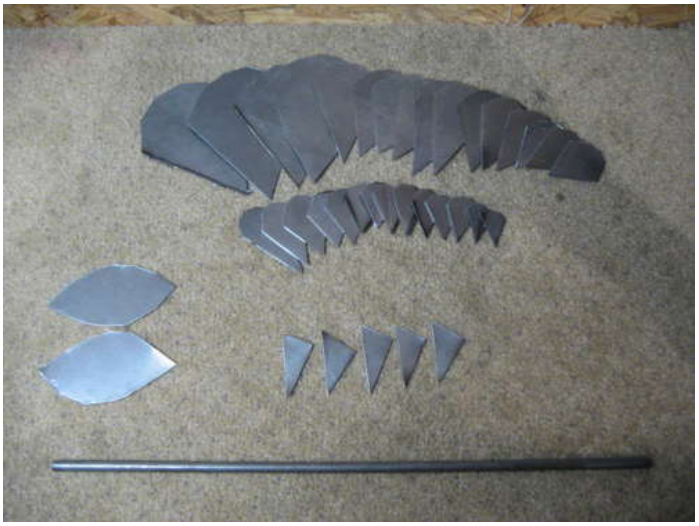
It doesn't matter how you shape the metal as long as you can form the basic shapes needed to construct the parts of the rose. I had a full shop at my disposal, so I made my pieces using a hydraulic press to make straight cuts and I used a stationary belt sander to obtain the rounded shapes. However, these tools are not necessary. If you know any body that has a laser engraver/cutter (wink, wink), or a water jet you could draw up the pieces on AutoCAD and get them cut for you. Or if you have a bench grinder and a chop saw with an abrasion blade, you are totally capable of making these simple shapes. If you use a lighter gauge metal, such as 22ga, then sheet metal sheers will be adequate to cut the shapes out of the steel.

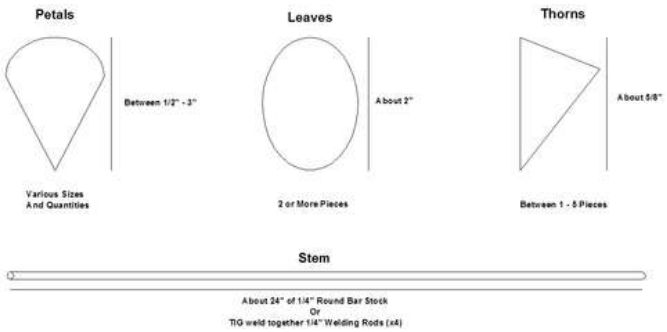
Petals:
The petal is the main and most notable part of the rose. They are made using a simple ice cream cone shape. You need to make them in increasing sizes because they need to get larger and larger as you go from the center of the rose outward. The number required completely depends on how detailed and how tightly packed you would like to make the rose. I used about thirty petals in my sculpture and made them very tightly packed.

Leaves:
The leaves of the rose are made with a shape that is similar to an ellipse, but with pointier tips along the large axis. The number of leaves required depends on your taste. You can even leave them out of the sculpture if desired

Thorns:
The thorns can easily be made out of left over scraps from making the other rose parts. Any triangular piece scrap metal that is between 1/2" to 1" in length along the hypotenuse will work fine. Once again the number of thorns is completely up to you.

Stem:
The stem can be made out of any piece of stainless steel that is about 1/4" in diameter. You could use round or square bar stock. Round would be ideal, but square might give the rose a cool look. Square bar stock can easily be sanded or ground to a round profile if need be. I did not have either of the aforementioned materials, so I constructed my stem by TIG welding together 4 pieces of 1/8" welding filler rod. I do not recommend doing this because it is time consuming and requires welding experience to do correctly, however if you have the filler metal, experience, and time at your disposal...knock yourself out! It took me at least 8 hours of shop time to accomplish, but I had the time to burn. One cool result was that it gave my stem a very natural look because of the distortion that resulted from welding the filler rods together.





step 3: Forming the Petals into the Rose Bloom

After the parts have been shaped you can move on to forming them.

Petals:

Basically, you start by folding two of the smallest sized petal pieces in half so they resemble the shape of a hot dog bun. Then slide the edge of one piece into the center of the other piece and crimp them together in a vise. Now you have your starting point to begin welding. From this point on you have to form each piece so that it 'hugs' around the core that you just started. After you have shaped a petal you can weld one side of it to the core and then if need be, you can bend it to perfectly fit the contour of the core. Once you achieve the desired shape, weld the other side. Then bend the pointed part of the ice cream cone shape inward to form the bottom of the rose bloom, weld it up, and grind smooth. After each pedal is welded onto the core make sure to grind or sand off the weld beads to keep the rose tightly packed. Once you start getting a couple layers away from the core you can begin creating the 'lip' along the top of the petal. This gives the rose an opening effect visually. I won't try to describe in words all the techniques for obtaining all the contours because it would sound confusing. Just use your vise, vise grips, ball peen hammer, and work bench and get creative! By trial and error you will get the hang of how the metal behaves. Just remember that the good thing about working with metal is that you can always fix a mistake and no one will ever know the difference. Remember to alternate locations of the pedals to avoid making the rose look like a spiral. Once you have gotten the rose bloom to your desired size just weld up any gaps in the bottom and sides, grind them clean, and move on to the stem.

step 4: Making the Stem

Stem:

To make the stem, take the bar stock, hammer it, and bend it so that it isn't perfectly straight or smooth. This makes it look less like a bar and more closely resembles a real rose stem. Then take the triangular pieces you formed for the thorns and weld them in the desired locations. After they are welded, grind off the weld beads and use the grinder (Or sander, or file, or Dremel tool) and shape the triangle into a pointed thorn. After you have attached and formed all of the thorns, it's time to move on to the leaves. The leaves are formed by bending the ellipse shape along it's long axis into a V. Then bend the edges, so it begins to resemble a pair of wax lips. After that is done, bend the leaves along the center ridge to give them a natural curved shape. This is tricky to do. I did it by putting the piece in a vise (ridge on one side, 'lips' on the other) and hammered it towards the ridge side, opened the vise, slid it up a little, closed the vise, and hammered again. Do this a couple of times and it will have the desired shape. After you have finished the leaves, just weld them on to the stem and grind away the welds.

step 5: Finishing

After you have made the rose bloom and the stem (with thorns and leaves), all you have to do is attach them. Just tack weld the tip of the stem onto the center of the bottom of the rose bloom. Stand back from the rose and look at it to make sure you have the stem where you want it. If it looks good, go ahead and weld it up and grind the weld bead off. Viola! You have just made a rose out of scrap metal! You can leave the rose 'as is' if you like or you can clean it up if you wish. For mine, I sand blasted everything except where the rose opens to get a nice clean look. I didn't sandblast the opening of the rose because the steel charred heavily when the rose bloom was very small, but as it became larger and larger it became more able to dissipate the heat and slowly became less charred. It gave the steel and cool look by being dark in the center and it gradually gets lighter and more reddish until it no longer shows any signs of being effected by the heat. Then I polished the thorns, etched my signature onto the underside of a leaf, and proceeded to show it to everybody. I had a great time making it and it is now one of my favorite art pieces. I hope you have the same experience as I did. Enjoy.

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Comments

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smeeves says: Nov 18, 2009. 11:52 AM **REPLY**

This is fantastic. My friend started to make a steel flower for his anniversary with his girlfriend and I thought it would be a good idea to make a rose. This is so far the best tutorial I've found on the internet so far. I really like the picture in GusGrass's comment, I'm probably stealing that idea for the stem cuz it looks so dam cool. (hope you don't mind, I'll think of something new if you do.)

Awesome work!

jaredzeuli says: Nov 18, 2009. 12:35 PM **REPLY**

Thank you for the complement. Yeah, my stem isn't the most practical because the flower weighs about five pounds and the majority of that is in the rose, not the stem. It is very top heavy and needs a special vase to hold it so it doesn't fall over. I've been swamped with moving to a new state and work, but I will be making some new stuff and I'll try to throw pics on here or make another instructable...especially if they have another contest for a laser cutter (fingers crossed).

dpsilver says: Sep 11, 2009. 8:17 PM **REPLY**

o my god
i cant even solder this and u welded it together i must get that good one question can i weld copper i think the reason for asking is obvious lol

gamermod says: Sep 20, 2009. 7:56 AM **REPLY**

i cant solder at all, i always wind up melting sum important component, but when it comes to welding i can beast anything my welding teacher even brought in her broken futon and wanted me to weld it b/c she cudnt lol

dpsilver says: Nov 11, 2009. 5:24 PM **REPLY**

yea but is welding copper possible with any kind of welding rod i think the reason for asking is obvious lol

jaredzeuli says: Nov 12, 2009. 6:33 AM **REPLY**

Yes, it is possible. Copper is very hard to weld with and only very skilled welders even do it. It is like aluminum and dissipates heat extremely well, so it is hard to concentrate the the heat into a small area to make a controllable weld pool. Not to mention the work piece gets extremely hot very fast. If you are so gung-ho about it...go try making detailed welds with aluminum and if you can handle aluminum like it ain't no thang, then go ahead and pursue trying copper. If you are really stuck on the whole copper thing, I recommend to just weld it in carbon steel and then gett it electroplated with copper. It works just like chroming something, but with copper.

dpsilver says: Nov 12, 2009. 5:41 PM **REPLY**

yea good plan i will only electro plate the petals but it might be pink but o well ive seen pink roses

Roseheart says: Oct 11, 2009. 11:49 AM **REPLY**

Hey! This is SOO great. I'm going to make one of these! Thanks SO much for sharing. I might even add a gold metallic paint to it when I'm done. =)

rjasso says: Sep 24, 2009. 5:58 PM **REPLY**

Damn you got a creative mind

Lucas0214 says: Aug 21, 2009. 7:30 PM **REPLY**

I was thinking of making a small rose sculpture that had curved leaves along the stem that could be used to hold small lanterns/ candles. Would it be okay if I used you're folding technique as a refence in an Instructable? I would redirect builders to your Instructable with your permission if thats alright? Please respond ASAP. Thank You.

jaredzeuli says: Aug 23, 2009. 2:50 PM **REPLY**

I have no problem with that. Please let me know when it is finished so I can see your instructable.

Lucas0214 says: Aug 23, 2009. 6:21 PM **REPLY**

Merci... I will indeed let you know when I'm done

daywalker42 says: Aug 20, 2009. 6:43 AM **REPLY**

this is a true work of art, man, I am totally amazed by this. I wish I had a shop and 55 hours to spend on one. unfortunately in lieu of that I have Cal III and physics lab. Yeah, college!

pmn9393 says: Aug 18, 2009. 7:26 PM **REPLY**

I think it would be nicer if the petals were in correct proportions as in the Fibonacci sequence 1,1,2,3,5,8,13..... Just an idea.

jaredzeuli says: Aug 19, 2009. 12:02 PM **REPLY**

The Fibonacci sequence is completely irrelevant to a rose. It gains in size far too quickly to replicate the size increase of petals in a rose. It is an almost exponential growth. I'm not sure if you are familiar with math, but it is based on the breeding and growth rate of a population of rabbits. It would be an exponential number if the deaths of past breeding rabbits were not taken into account. The sequence just happens to occur in other instances, mostly relating to mathematics. The references of it to nature are merely unsubstantiated suggestions and theories of how sections of the sequence are found in nature. Plus it is only suggested to be found in a handful of things in nature and all of them posses symmetric and consistent patterns (e.g. Sunflowers). A rose is a gradual and even growth in size from the smallest to largest petal and has no symmetry at all. Next time you have one...peel off all of the petals and put them side by side from smallest to largest and you'll see. Not to mention I'm working with metal, not something that is easily manipulated or can be meticulously sized like paper or cloth. I do plan on making a sunflower soon because I think they look cool, but I'm not going to waste my time to be meticulous and try to replicate the sequence because it is only found on part of the flower and it would be a wasted effort because no one would ever notice or care. I bet you are just name dropping the Fibonacci numbers because you read or saw them in the Da Vinci code.

neilh says: Aug 18, 2009. 5:29 PM **REPLY**

Very nice welding work! Impressive.

golddigger1559 says: Jun 6, 2009. 5:17 PM **REPLY**

can you post a cut-out diagram for those who arent good at following mesurments?

jaredzeuli says: Jun 7, 2009. 11:00 PM **REPLY**

No, it would take a long time and not accomplish much. It isn't necessary to measure the pieces meticulously, simply eyeball them. I gave the measurements so that people could get a general idea of the dimensions I was working with. When it comes to the petals, just start with a couple that are a little bigger than your thumb nail and gradually increase them in size. It's easier than it looks, so don't try to take the measuring too seriously.

mattthegamer463 says: May 22, 2009. 12:18 PM **REPLY**

Could there be any way to get around the welding portion of this project? Like some way to bolt the pedals on or something? I have all the tools except for a welding machine.

pyrotechnical says: May 24, 2009. 6:52 PM **REPLY**

you could braze it with a torch from homedepot, you'd get gold spots on the stem where you attached the thorns and leaves. That would be the cheapest way, unless you befriend someone who welds.

jaredzeuli says: May 23, 2009. 11:52 PM **REPLY**

No. There is really no way to do this project without a welder. The cheapest way to accomplish it would be to either rent a MIG welder with flux cored welding wire from a tool rental shop, or to attempt to oxy-acetylene weld it will softer materials. Bolting it together would not really accomplish the purpose of the build for many reasons.

mattthegamer463 says: May 26, 2009. 5:50 AM **REPLY**

why would bolting not accomplish the purpose of the build? Isn't the purpose of the build to make a steel rose? You would need larger pieces of scrap steel, and a bolt which may not be scrap, but I think its a reasonable solution, and certainly viable since most people don't have welding access or knowledge.

Here's what I made last night with a tin snips, a hammer and needle nose pliers. I coloured it with a blowtorch and sealed it with clear coat.

jaredzeuli says: May 27, 2009. 7:38 PM **REPLY**

Don't take me the wrong way but you are trying to compare T-ball with the major league. My rose is literally half the size of your flower and contains nearly ten times the parts. When I commented on whether or not it was possible to make a rose with bolts or not, I was simply giving the most honest answer. I wasn't trying to tell you it CAN'T be done...I simply told you it wasn't the way to do it. I'm not the type to discourage artistic improvisation...in fact I encourage it. I merely tried to inform you that there is no way to imitate the natural beauty of a rose accurately with nuts and bolts. And I would have to disagree about welding being hard to access. It is everywhere and if you dedicated the time and motivation, I promise you will find someone who will gladly you show you how to do it. There are many metal sculpture clubs that you can join in your own home town. Not to mention you seem to have an interest in it, so why not take the dive and invest in one with your own money. I love my welder and I have no regrets about the money I spent on my welding machine or the money I spent on taking classes to learn how to weld. It is enriching, relaxing, and motivating. Instead of using your brain to accomplish the project without using a welder, why not put that effort towards finding how you could get a welder to do the project the proper way. That's my two cents, try to take offense to my comment.

bg_askins says: Jul 3, 2009. 12:50 PM **REPLY**

i've made several of these using scrap steel sheet metal and i've NEVER had to weld. brazing works fine if you're good at it. i dont use stainless bc i like the old rusty look.

Roseheart says: Oct 12, 2009. 3:30 PM **REPLY**

I like how loosely packed the petals on your rose are.
=D nicely done!

mattthegamer463 says: May 28, 2009. 6:00 AM **REPLY**

I don't disagree with you that welding isn't the best way to do this, it obviously is. I just don't have the time or money right now to invest in welding equipment, and during the school year I have free access to MIG, stick and oxy/ace welding tools at college, so that also helps deter me from spending my own money on equipment, equiment that I can't even use most of the year.

I'm simply trying to make due with what I have at hand, and to be honest as of right now, after completing that other flower, I dont think I can do a rose justice without welding equipment, so my project is sidelined.

D.T says: May 14, 2009. 7:47 AM **REPLY**

Wow! Sick!

mntbkrguy says: May 12, 2009. 12:43 PM **REPLY**

I love it! I have made a couple similar roses out of copper but nothing as detailed. Great Job!

reivaj says: May 2, 2009. 3:58 PM **REPLY**

what if I made one with soda can ?

jaredzeuli says: May 3, 2009. 9:26 AM **REPLY**

It could be done, but it will be tricky unless you are an experienced welder. There are a few things to consider. Soda cans are aluminum, not steel. Welding aluminum requires either a TIG welder with A/C current or a MIG welder that has a push-pull gun and A/C capabilities. Also, the wall thickness of an aluminum can is VERY thin, much thinner than 22 gauge sheet metal. Welding material that thin has a lot of limitations do to over heating since it cannot dissipate the extensive amount of heat that the welding process creates. Aluminum is an extremely good heat conductor, so that further intensifies this effect. In welding school it was actually a challenge the instructor gave the class at the beginning of the semester of my TIG class. He would give extra credit to anyone that could weld two sheets cut of an aluminum can together successfully. So to answer your question, yes it can be done, but it won't be easy. Next time I have access to a TIG welder I will give it a try and if it is successful, I will make an instructable.

duck-lemon says: Apr 17, 2009. 3:26 AM **REPLY**

Great project except it doesnt show the process of making the finished product, this would be greatly improved if you could show some of the steps in between, maybe a reproduction.

jaredzeuli says: Apr 19, 2009. 11:47 PM **REPLY**

Here you go. I made another one and took pictures this time. It took me all weekend, but I got you what you wanted. Can you please give me a new rating? Thanks.

duck-lemon says: May 1, 2009. 4:59 AM **REPLY**

I would be more than happy two this is an awesome project!

bigdan87 says: Apr 30, 2009. 8:35 PM **REPLY**

Very very cool! i will definately try this some weekend. not really set up to weld stainless so probably just use regular sheet metal. great ible!

alex-sharetskiy says: Apr 20, 2009. 7:40 AM **REPLY**

Elegant yet deadly?

seems like you can knock some one out with that!

jaredzeuli says: Apr 20, 2009. 11:44 AM **REPLY**

Yes, very true. The first one I made (which is the sandblasted one in the pictures) weighs between 3-5 pounds. I tried to display it in a vase, but it was so top heavy that most normal vases would just fall over. Not to mention the thorns...they are sharp.

Iridium7 says: Apr 24, 2009. 9:34 PM **REPLY**

if you give your girlfriend/wife this, Don't break up/ divorce them. It will probably be the fist thing they reach for, next to the cricket bat.

drjohnny123 says: Apr 22, 2009. 10:51 PM **REPLY**

Impressive Bro!!

jaredzeuli says: Apr 23, 2009. 6:38 PM **REPLY**

Thanks!

DHos says: Apr 22, 2009. 9:00 AM **REPLY**

Very Pretty, but not really that Green

jaredzeuli says: Apr 22, 2009. 10:13 AM **REPLY**

It's completely made out of scrap metal, so I'd have to say it is Green. Green = Reduce, Re-use, and Recycle. This would count as both Re-use and Recycle. Now if I went out and bought brand new metal stock, then that would be different and I would agree that this would not be Green.

DHos says: Apr 22, 2009. 11:46 AM **REPLY**

Oh I don't know, the images seem more Gray then Green to me.
Haha /slap ow
Ok, yes it is Green in a sense that it is a great use of waste material. I do agree. Plus, this is more of a new and innovative idea then most I am seeing here.

jaredzeuli says: Apr 22, 2009. 12:19 PM **REPLY**

Thank you for noticing. There are few entries in this contest that are TOTAL rip-offs of others ideas.

Spl1nt3rC3ll says: Apr 21, 2009. 9:48 PM **REPLY**

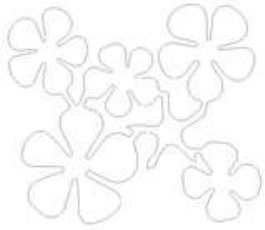
This is insane! Very well done, you have my vote.

rita g says: Apr 21, 2009. 9:00 AM **REPLY**

It's beautiful and everlasting!

GusGrass says: Apr 20, 2009. 5:20 AM **REPLY**

Great Work.
I did this once as a Black Smith Project in Carbon steel with my Hand Cranked Cola Fired Forge.
The BMP file showes a Laser or Water Jet Shape for petals that did not require welding. With a hole drilled on the middle of the petals I Riveted the Stem to the Petals.
As a Black Smith "I Cheated" and used Ox/Accy to shape and finish.
The Carbon Steel was colored to a blue color with heat and Bee's wax.



jaredzeuli says: Apr 20, 2009. 6:29 AM **REPLY**

That looks great! Did you do anything to prevent it from rusting? I made one of my roses out of carbon steel and I'm trying to figure out a way to keep it from rusting. I was thinking about getting it chromed to see what it would look like.

GusGrass says: Apr 20, 2009. 10:58 AM **REPLY**

Clear Spray Paint

eash says: Apr 20, 2009. 9:38 AM **REPLY**

Wow, this is so beautiful. You are very talented.

blazoner says: Apr 20, 2009. 8:09 AM **REPLY**

Wonderful work. Far beyond my abilities, though. I saw a project similar to this one, and they used barbed-wire for the stem. Thanks for all the pictures. :)

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