

# METAL FABRICATION

**A Full Service Facility** for all Your Project Requirements!



## ***Company History***

Sturdy Built Manufacturing was established in 1999 at our farm shop in Reinholds, PA, with our primary focus on designing and building durable equipment for the dairy industry. As we support the dairy industry, we have continued to increase our manufacturing and capabilities, which enables us to offer our machinery and fabricating services to many allied industries.

To better support demand as a full-service production facility, we transitioned to our current Denver, PA location in 2010.

From prototyping to volume production, we continue to partner with you in creating strategic solutions. Explore our service offerings today!

## ■ ***Our Inventory***

We inventory many tubing and sheet metal options, as well as solid rounds, squares, and structural steel. We have many sizes available and will cut to length for you.

## ■ ***Our Services***

Whether you need a prototype, a single component, or a production run, we are a strategic partner for complex needs! We are equipped to handle saw cutting, laser-cutting, press brake forming, tube bending, machining, welding, finishing, and assembly. Partnered for water jetting, galvanizing, and powder coating services, we are a one-stop shop for whatever your projects may require.

## ■ ***Value Design***

Our experienced in-house design team coupled with integrated software implement efficient processes to reduce material and project costs while maintaining high quality specifications.

## ■ ***Quality Control***

With over two decades of industry experience, quality and accuracy is central to our work and the value we supply to our customers.

## ■ ***On-Time Production***

Delivery goals and requirements are planned into our manufacturing processes. We strive for consistent and reliable lead times.

## ■ ***Logistics***

Transportation costs make a big impact on project costs. From maximizing truckload space and coordinating routes and carriers, you experience shipment savings.

## ■ ***Our Location***

We are conveniently located along S. Muddy Creek Road in Denver, PA, with easy access to major highways, including the PA Turnpike (I-76), PA Route 222, and PA Route 272.

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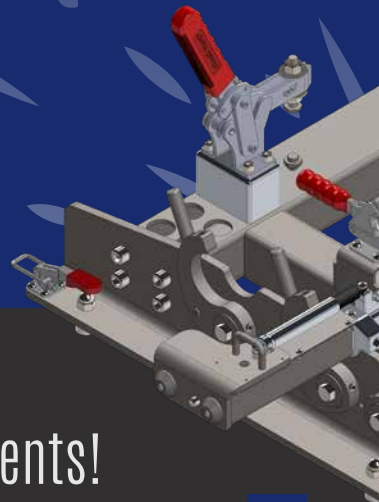
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**A Full Service Facility** for all Your Project Requirements!





*Your Strategic  
Partner for Complete  
Metal Fabrication*

**INNOVATION.  
CAPABILITIES.  
VALUE.**

# Design & 3D Modeling



## *In-House Design Team:*

Our design team is prepared to take your project or concept to the next level. We offer 3D modeling with complete measurement data for the entire surface of your product. The actual geometry will correct potential problems before your parts enter into production and can save you valuable money in material and labor. For new items or to improve existing parts, contact us for this valuable service!

 **SOLIDWORKS**

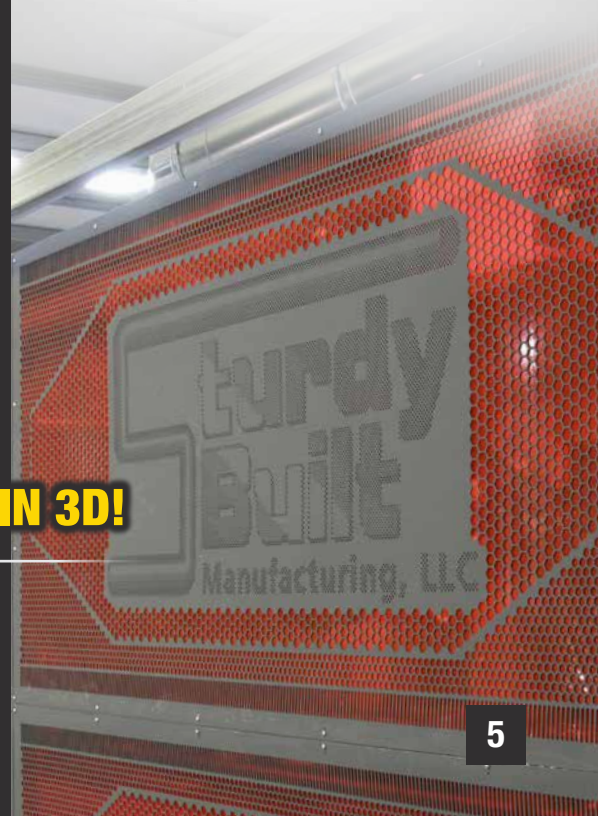


## *Perforated Pattern Designs:*

Our CAD software enables us to convert almost any image document into perforated pattern designs on sheet metal. After these 3D patterns are created digitally, we bring them to life on sheet metal by CNC turret punching or laser cutting. This is an effective way to stamp your logo into products as well as to create an unlimited amount of presentations for various applications.



**See It Here IN 3D!**



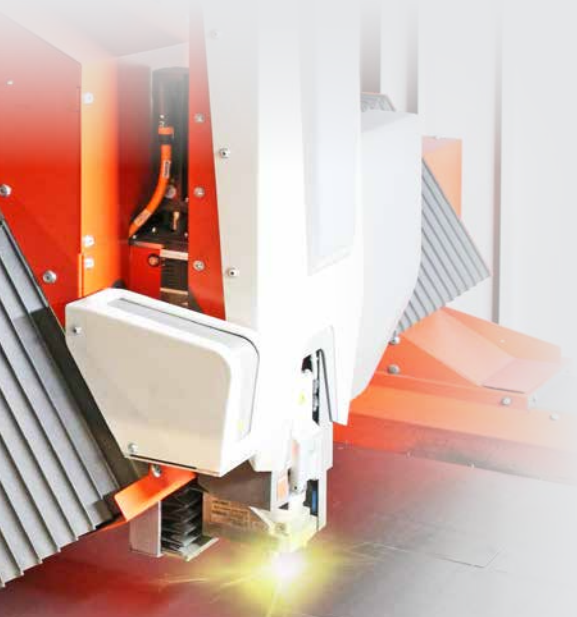
# Precision Cutting



## ▶ *Laser Capacity:*

With full automation efficiency, we are equipped to cut 60" x 120" sheet or plate up to 1.0" ferrous (steel and stainless) and non-ferrous metals (1.0" aluminum, .625" brass, and .500" copper). Creating custom shapes and complex geometries is cost-effective with our CNC technology and intelligent nesting software.

## *Laser Cutting*



## Extensive Sheet Metal Inventory



# Sheet & Plate Fabrication

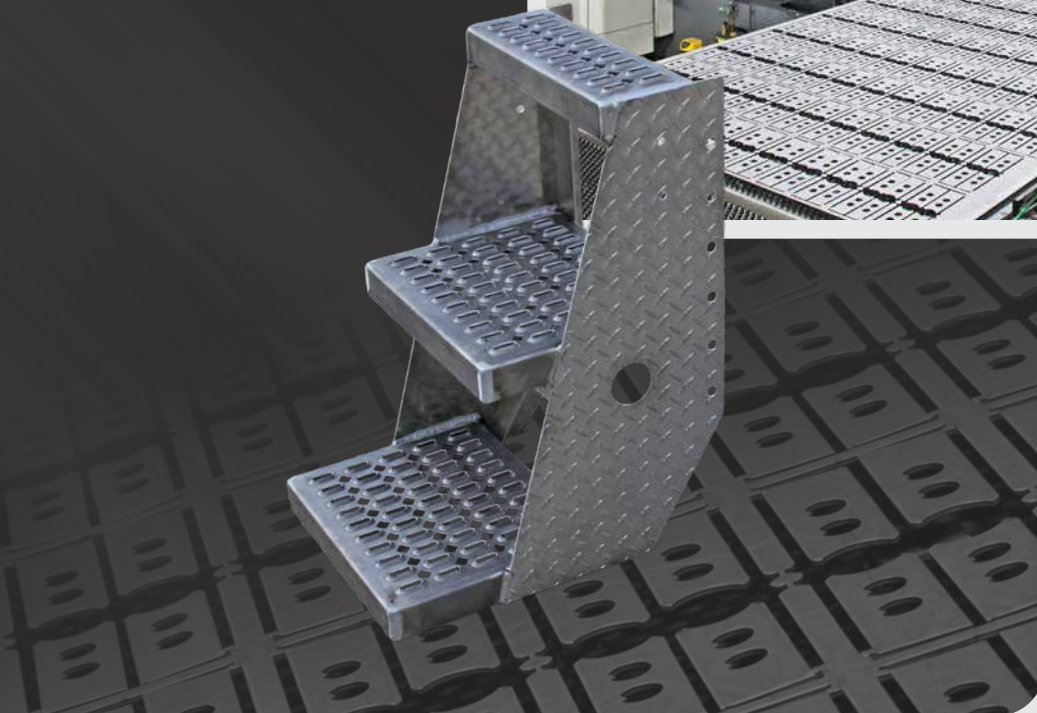


## *Turret Punch Capacity:*

Up to 1/4 in. material, 33 ton  
44 station with auto index  
stations and tapping head.  
5 ft. x 10 ft. automatic load  
and unload, and up to 5 ft.  
x 14 ft. with manual loading.



## *Turret Punching*



We stock the standard  
sizes in the following  
materials: HRP&O, gal-  
vanized, galvanized,  
aluminum 5052 & 6061,  
stainless 304 & 316  
grades in normal 2B fin-  
ish & select #4 brush.  
Additional material and  
size options are avail-  
able.

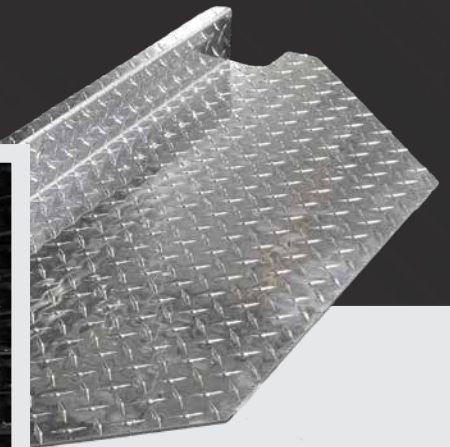
# Sheet & Plate Fabrication



## ▶ *Robotic Pressbrake Capacity:*

Material up to 60 in. length, featuring an 88 ton press capacity. Process efficiency for volume repetition and fluctuating batch sizes. Vast application capabilities for thin to thicker materials.

## *Press Brake Forming*



## ▶ *Pressbrake Capacity:*

6 axis: From small profiles up to 14 ft. - 350 ton with sheet followers for large or bulky material.

- 1/4 in. x 14 ft. A36 with bend radius at 8 x material thickness
- 1/2 in. x 8 ft. A36 with bend radius at 8 x material thickness

# Sheet & Plate Fabrication



## *Plate Roll Capacity:*

10 ft. x 3/8 in. x 43.5 in. internal diameter in 65,000 psi steel, or up to 5/8 in. plate with proportional width and diameter. 8 axis CNC control provides the ability to roll cones or multi-radii profiles such as elliptical, oval, and rectangular boxes with radii corners.



## *Plate Rolling*

## *Shear Capacity:*

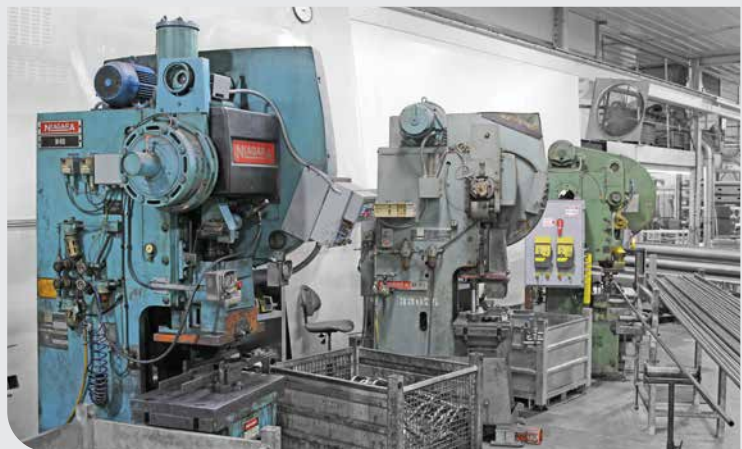
1/2 in. x 12 ft. mild steel, 3/8 in. x 12 ft. stainless with CNC front gauge and back gauge.



## *Punch Presses*

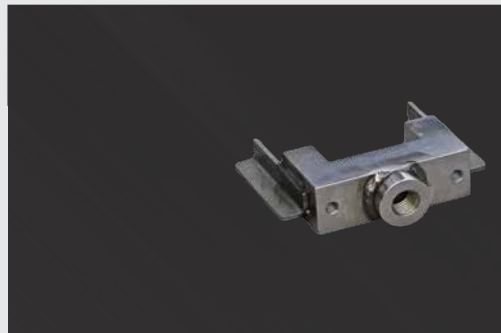
## *Presses:*

Coil feeding.  
Range 15 to 150 tons.  
Parts stamping. You may supply the die set, or we can design and build one for your part.





**Vertical Mill**



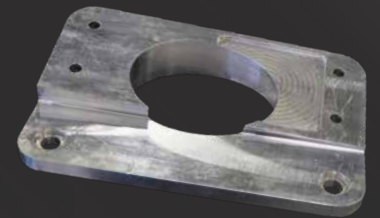
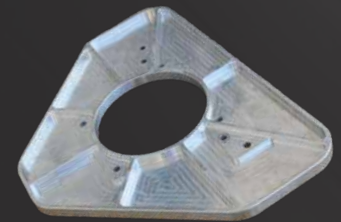
**Gantry Mill**



Drills, mills, taps, and bevels large parts, all in one setup. CNC precision for high production and small run project efficiency.

► **Milling Capacity:**

3 axis: Small, multifaceted pieces up to 84 in. x 40 in. x 30 in. 5 axis: Up to 30 in. diameter.



► **Mill Capacity:**

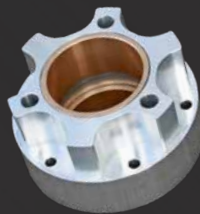
3 axis: 19.5" x 72" x 240"  
368 ft/lbs. torque capacity

# Precision Machining



## Turning Capacity: ◀

Up to 16 in. diameter, 23 in. length with Y-axis and live tooling, 3.5 in. spindle bore with C-axis. One-off prototypes or large production runs with bar feeding and/or robotic parts load and unload.

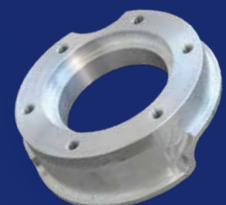
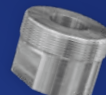


## Lathe



Integrated *Robotic Automation* →  
at work in the Sturdy Built Mfg. Machining Area

Producing intricate parts with tight tolerances and unique shapes in any volume.



# Tube Fabrication

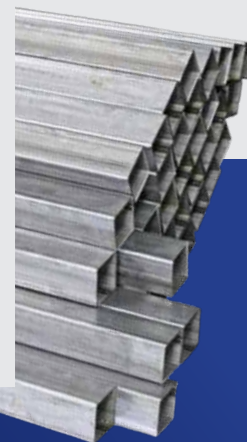
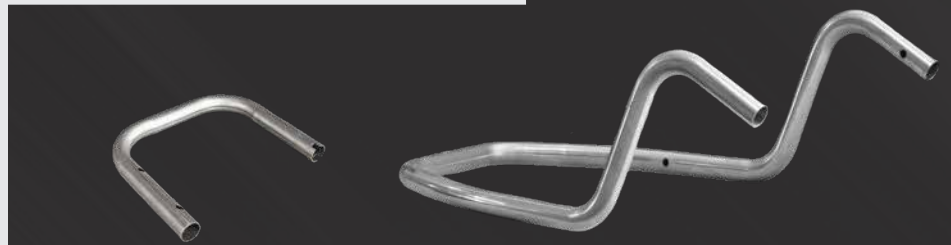


## ► *Bender Capacity:*

Small tubing up to 4 in. sch. 40 pipe or 5 in. O.D. rotary draw. 5 axis interpolation push bending with variable radius up to 2-1/2 in. sch. 40 pipe.

## *Tube Bending*

## *High Speed Cold Saw Cutting*



## ► *Cold Saw Capacity:*

Up to 3 in. OD tubing and 1.5 in. solid bar. 24 ft. bundle infeed and 16 ft. part discharge. Dot-matrix stenciling available for individual part length stamping.

# Tube Fabrication



## *Sawing Capacity:*

- 25 in. vertical x 30 in. horizontal (straight cut)
- 16 in. vertical x 18 in. horizontal (45° miter cut)
- 10 in. vertical x 18 in. horizontal (60° miter cut)



## *Tube Sawing*



## *Swaging*



## *Swaging Capacity:*

Up to 4-1/2 in. O.D.  
schedule 40

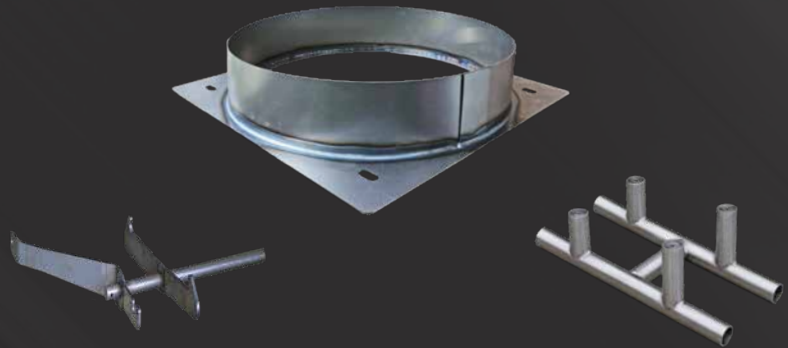


*LARGE INVENTORY OF*  
**PIPE AND TUBING**

# Precision Welding

## ► *Manual & Robotic Welding*

Specializing in one-offs with high-precision welding tables. Rapid-setup modular tooling helps eliminate fixture charges. If a large production run is needed, and the parts are conducive to robotic welding, we will build fixtures and weld them robotically. In our robot department, we have table capacity up to 5 ft. x 20 ft. with 360° rotation.



## ▼ *Tig* ▼ *Mig* ▼ *Spot*

Higher quality and stronger welds on non-ferrous, thin and heavier metals, including stainless steel and aluminum. Rely on our team of skilled welders for the quality tig welding your projects require. We also offer Robotic Tig Welding with water cooled fixtures to minimize warpage during the fusion process.



# Precision Welding



## We Weld Aluminum, Carbon and Stainless Steel

Welder machines calibrated annually. Certified welders for AWS unlimited thickness. ASME certified for pressure vessel steel welding.



## ► Fixtures for Volume Production

We design and build custom fixtures for whatever your production project requires!

# Product Finishing



## ***Vibratory Finishing***



Deburring, descaling, and polishing for tubes, formed parts, and much more.  
Size capabilities ranging from small pieces up to 60 in. long.

## ***Sheet/Plate Finishing***



Deburring, finishing, and/or edge rounding on parts up to 52" wide.  
Whether you need only the laser edge rounded or desire a grained finish  
on the entire part, we can provide the finish you request.



# Product Finishing



## Brush Deburring



▶ Deburring bent and straight pipes, special profiles and heavy weights. Accommodates steel, stainless, aluminum and NE-metals. High performance brushes debur both the inside and outside edges at the same time.

## Belt Sanding



▶ Multi-position sanding with full left and right movement for corner shaping, beveling, deburring, flat work, descaling and angle work.



Many parts require grinding, polishing and special detail finishing after the various stages of the fabrication process. We provide automated or manual finishing to ensure your parts are uniform and fully completed, ready for assembly or shipment.

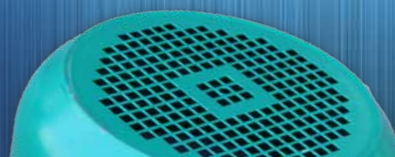
Partnered for

**Complete Fabrication Services**

## Waterjet

Cut intricate shapes with severe tolerances in materials from plastic to stainless steel in thickness up to 6 in.

- **Painting**
- **Galvanizing**
- **Powdercoating**





## Technical Inspections



Cad-based 3D arm measurement on request. First article inspection, in-process inspection, prototyping, part verification and analysis. We ensure dimensional and tolerance accuracy with high-end quality control.

## Product Assembly



- ▶ Sturdy Built provides a complete fabrication department that can assemble your products from the components we have created along with any additional parts necessary, provided by you or by our supply chain. This valuable service increases overall lead time efficiency and allows us to direct ship to your customers, reducing transit and handling costs.



## Packaging & Shipping Services

- ▶ In addition to our commitment to meet your needs in complete product fabrication, product assembly and lead time satisfaction, we offer local delivery and nationwide shipping via UPS, FedEx, or common carrier anywhere in the United States and Canada. Special care is taken during packaging to ensure our customers will receive their product in excellent condition.

# BRING YOUR REQUIREMENTS!



*We Are Your Strategic Partner  
for Complete Metal Fabrication*



# CONVERSION CHART

Fraction	Decimal	Millimeter
1/64	0.015625	0.3969
1/32	0.031250	0.7937
3/64	0.046875	1.1906
1/16	0.062500	1.5875
5/64	0.078125	1.9844
3/32	0.093750	2.3812
7/64	0.109375	2.7781
1/8	0.125000	3.1750
9/64	0.140625	3.5719
5/32	0.156250	3.9688
11/64	0.171875	4.3656
3/16	0.187500	4.7625
13/64	0.203125	5.1594
7/32	0.218750	5.5563
15/64	0.234375	5.9531
1/4	0.250000	6.3500
17/64	0.265625	6.7469
9/32	0.281250	7.1437
19/64	0.296875	7.5406
5/16	0.312500	7.9375
21/64	0.328125	8.3344

Fraction	Decimal	Millimeter
11/32	0.343750	8.73120
23/64	0.359375	9.12810
3/8	0.375000	9.52500
25/64	0.390625	9.92190
13/32	0.406250	10.3187
27/64	0.421875	10.7188
7/16	0.437500	11.1125
29/64	0.453125	11.5094
15/32	0.468750	11.9062
31/64	0.484375	12.3031
1/2	0.500000	12.7000
33/64	0.515625	13.0969
17/32	0.531250	13.4937
35/64	0.546875	13.8906
9/16	0.562500	14.2875
37/64	0.578125	14.6844
19/32	0.593750	15.0813
39/64	0.609375	15.4781
5/8	0.625000	15.8750
41/64	0.640625	16.2719
21/32	0.656250	16.6687

Fraction	Decimal	Millimeter
43/64	0.671875	17.0656
11/16	0.687500	17.4625
45/64	0.703125	17.8594
23/32	0.718750	18.2563
47/64	0.734375	18.6531
3/4	0.750000	19.0500
49/64	0.765625	19.4469
25/32	0.781250	19.8438
51/64	0.796875	20.2406
13/16	0.812500	20.6375
53/64	0.828125	21.0344
27/32	0.843750	21.4312
55/64	0.859375	21.8281
7/8	0.875000	22.2250
57/64	0.890625	22.6219
29/32	0.906250	23.0187
59/64	0.921875	23.4156
15/16	0.937500	23.8125
61/64	0.953125	24.2094
31/32	0.968750	24.6062
63/64	0.984375	25.0030

## Stainless Steel

Gauge	Decimal Thickness	Est. lbs/ft <sup>2</sup>
28	0.0150	0.630
26	0.0180	0.756
25	0.0200	0.840
24	0.0240	1.008
22	0.0300	1.260
20	0.0360	1.512
19	0.0420	1.764
18	0.0480	2.016
16	0.0600	2.520
14	0.0750	3.150
13	0.0900	3.780
12	0.1050	4.410
11	0.1200	5.040
10	0.1350	5.670
8	0.1650	6.930
7	0.1874	7.871
3/16	0.1875	8.579
1/4	0.2500	11.160
5/16	0.3125	13.750
3/8	0.3750	16.500
7/16	0.4375	19.080
1/2	0.5000	21.660
5/8	0.6250	26.830
3/4	0.7500	32.120
7/8	0.8750	37.290
1.0	1.0000	42.670

## Aluminum

Decimal Thickness	Est. lbs/ft <sup>2</sup> (Based on 6061)
0.016	0.233
0.020	0.279
0.025	0.349
0.032	0.447
0.040	0.559
0.050	0.698
0.063	0.880
0.080	1.117
0.090	1.257
0.100	1.397
0.125	1.746
0.160	2.235
0.190	2.654
0.250	3.492
0.313	5.238
0.375	5.238
0.500	6.980

## Galvanized & Galvaneal

Gauge	Decimal Thickness	Est. lbs/ft <sup>2</sup>
28	0.019	0.781
26	0.022	0.906
25	0.025	1.031
24	0.028	1.156
22	0.034	1.406
20	0.040	1.656
19	0.046	1.906
18	0.052	2.156
16	0.064	2.656
14	0.079	3.281
13	0.093	3.906
12	0.108	4.531
11	0.123	5.156
10	0.138	5.781
9	0.153	6.406
8	0.168	7.031

## Mild Steel

Gauge	Decimal Thickness	Est. lbs/ft <sup>2</sup>
26	0.0179	0.750
24	0.0239	1.010
22	0.0299	1.250
20	0.0359	1.510
19	0.0418	1.750
18	0.0478	2.010
16	0.0598	2.501
14	0.0747	3.125
13	0.0897	3.751
12	0.1046	4.375
11	0.1196	5.001
10	0.1345	5.625
9	0.1500	5.871
8	0.1640	7.011
7	0.1790	7.501
3/16	0.1875	7.661
1/4	0.2500	10.210
5/16	0.3125	12.760
3/8	0.3750	15.320
7/16	0.4375	17.870
1/2	0.5000	20.420
9/16	0.5625	22.970
5/8	0.6250	25.530
3/4	0.7500	30.630
7/8	0.8750	35.740
1.0	1.0000	40.840



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