

# How to Soften Steel

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Steel is a widely used material and is available in many different grades and forms. Some of the most common forms of steel are the mild steels, which have a very low carbon content and remain comparatively soft. Other steels have high carbon content or high percentages of other elements making the steel very tough and resistant to cutting or shaping. By softening -- or annealing -- steel it can be cut or shaped more easily and then hardened once in its final form.

## Things You'll Need

- Forge or heat treating oven
- Tongs
- Timer

## Heat Until Soft

### Step 1

Place the steel in a heat treat oven or forge and slowly raise the temperature of the steel to its particular austenite region. The austenite temperature region is different for each grade of steel and can usually be found from the foundry that produced the sample of steel.

### Step 2

Hold the steel at the austenite temperature for at least 30 minutes. The longer the "soak" time, the the better the chances that the entire piece of steel is annealed.

### Step 3

Lower the temperature of the steel slowly. Depending on the grade of steel, the temperature drop can be as slow as 5 degrees Fahrenheit per hour.

### Step 4

Cool the steel to room temperature and machine as needed.

## Tip

When machining annealed steel, it is important to not let the machine heat the steel too hot or it will begin to heat treat and harden the steel.

## References & Resources:

- [Mead Metals: Annealed \(Spheroidized\) Spring Steel](#)
- [Key to Metals: Cast Steel: Annealing](#)
- [eFunda: Full Annealing](#)
- [Mold Making Technology: Steel Heat Treating](#)