

Rolling Mill – Milling Silver & Gold Sheet & Wire

Rolling Mills – Basic Concepts

Rolling mills are one of the more common [jewellery tools](#) seen in small and medium sized workshops. In essence the rolling mill is a simple machine that shares many traits with a mangle. The traditional jewellers rolling mill will have steel rollers, so that when metal is passed between them it become compressed, changing the gauge or even shape of the piece. For example changing a circle into an oval shape.

As a rough guide when halving the thickness of sheet you will double the length (if rolling in one direction). Rolling should be a gradual process, and the resulting compression of the metal will mean that the metal will work harden. Therefore in between each stage of rolling, the metal will need to be annealed.

In addition to rolling sheet many of today's mills have the ability to roll wires into square or D shape sections – ideal for creating a tapered or shaped effect.

Smaller rolling mills are the most practical for the small or home workshop with one pair of rollers. Larger and automatic mills are available for the larger workshop, but with all mills they must be secured to a firm and steady surface – and many manufacturers recommend a dedicated stand bolted to the floor.

Rolling Sheet -

First ensure your sheet is prepared for rolling i.e. it's has been annealed, and cleaned, and importantly dried. Then adjust the width of the rollers, many machines have a dial gauge to aid precise rolling gap measurement. As a physical test try pushing the sheet between the rollers. If the sheet passes through, the rollers should be adjusted until it will not pass between them.

Once the rollers are in the correct position the mill is ready to roll down the metal. The sheet should be supported in one hand, whilst the other turns the handle, thus drawing the sheet through the rollers. The sheet should be caught as it comes through, and thickness checked using a vernier/calliper. Then re-roll to achieve the required thickness.

Rolling Silver circles to create Ovals

To create an oval take a silver disk, set the rollers as you would for rolling sheet, and then feed the disc through. Once the disc has been through the mill, check the thickness and length of the piece using a vernier/calliper, and repeat the process as necessary. When feeding the oval through the mill again, ensure that it is fed through the rollers in the same direction to ensure it elongates the oval.

Shaping Wire

Using a rolling mill with square grooves allows jewellers to shape (often into a square shape) and taper round wires. Before starting the process the wire must be annealed, pickled and cleaned and dried thoroughly. The wire is then pushed between the square grooves and the handle turned so the wire is drawn into the grooved section of the rollers. This then shapes the wire. To ensure the required shape is achieved turn the wire each time by 90 degrees.

Formed D Shape wire

Rolling mills with D shape channels allow D shape wire to be formed, and follow similar principals as shaping. The wire is fed through the D shape section rollers and once the wire has passed through check the thickness. If it is not of the required thickness repeat the process.

Best practice when using rolling mills

When using a rolling mill consider the following best practice hints & tips:

- Always use dry metal – any dampness will leave marks on the rollers – and risking pitting.
- Roll metal gradually, as too much pressure may result in the piece cracking when next annealing.
- Keep your mill well maintained and oiled.
- Remove any marks on the rollers. Clean with a damp cloth and acetone to remove dirt. For more stubborn marks carefully remove with fine wet and dry paper and fine steel wool.
- Keep the mill covered when not in use, to protect the rollers from workshop debris.

Rolling Mills are one of the more expensive jeweller's tools, and although simple in nature the mill can be put to many uses. When buying a mill, like many tools you should buy the best mill you can afford, with the better mills being more robust and having heavier and stronger rollers.

About the Author

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