

Design Resource

Metal Casting and Silver Embossing

Engraved Craft

by

Prof. Bibhudutta Baral, Dinesh Kumar Dandapat,
Tushar Barman and Aruna Kumari Y
NID, Bengaluru

Source:

<https://dsource.in/resource/metal-casting-and-silver-embossing>



1. Introduction
2. Artisans
3. Location
4. Tools and Raw Materials
5. Making Process
6. Products
7. Contact Details

Design Resource

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Introduction

Shankarapura in the Udupi district is well known for silver metal embossing work which is traditionally called as “Ubbu Shilpa” (Embossed / Engraved craft). Silver, copper, zinc, brass and bronze are together called as “Panchaloha” (Mix of five metals). Metal wares made of these metals have evolved into beautiful and unique art forms which are used in temples, rituals and other festive occasions. The artisans of Shankarapura are traditionally involved in this unique art form. Traditionally Idols of Deities, Pooja items and Utensils, Kalashas (Pitchers), Chariots and Mantapas (Pergolas) are created, as they are essential for temples. The famous Udupi Sri Krishna Temple also is one of the influences on the craft. Many of the ritual products are traditionally made for the Pooja (worshipping) purpose.

Silver sheet metal embossing is done by beating and hammering to obtain an attractive embossed effect depicting many mythological figures and episodes from Puranas (Epics). The artisan also makes another type of metalware by the lost wax process to create striking figures of Deities, Lamps, Trumpets and other household items.

A similar kind of art also is popular in Nagamangala near Mysore, Shiverapatna near Bangalore, Kundapur and Karkal from the Mangalore region, Shravanabelagola in Hassan district and other parts of Karnataka.



1. Introduction

2. Artisans

3. Location

4. Tools and Raw Materials

5. Making Process

6. Products

7. Contact Details

Design Resource

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2. Artisans

3. Location

4. Tools and Raw Materials

5. Making Process

6. Products

7. Contact Details



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1. Introduction

2. Artisans

3. Location

4. Tools and Raw Materials

5. Making Process

6. Products

7. Contact Details



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<https://dsource.in/resource/metal-casting-and-silver-embossing/introduction>

1. Introduction

2. Artisans

3. Location

4. Tools and Raw Materials

5. Making Process

6. Products

7. Contact Details



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Source:

<https://dsource.in/resource/metal-casting-and-silver-embossing/artisans>

1. Introduction
2. Artisans
3. Location
4. Tools and Raw Materials
5. Making Process
6. Products
7. Contact Details

Artisans

Ganapathy Acharya from Shankarapura is a senior artisan with more than 32 years of experience in metal casting who learned the art form from his father. The skilled artisan follows Shilpa Shastra (Epic of Craft) to create various idols of the Gods and Goddesses. He has a unique identity for making silver embossing - Ubbu Shilpa (Embossed / Engraved craft) which is only seen in Shankarapura.

Panchaloha (Mix of Five metals) and Gold metal embossing are also done based on customer orders. Many of these orders are given by royal families who wish to donate embossed sheet metal products to the famous temple of Udupi. The skilled artisan does not compromise on quality and fine finish thus his craftsmanship stands out and remains popular.



Senior Artisan - Ganapathy Acharya busy in his work.



Artisans and work environment.

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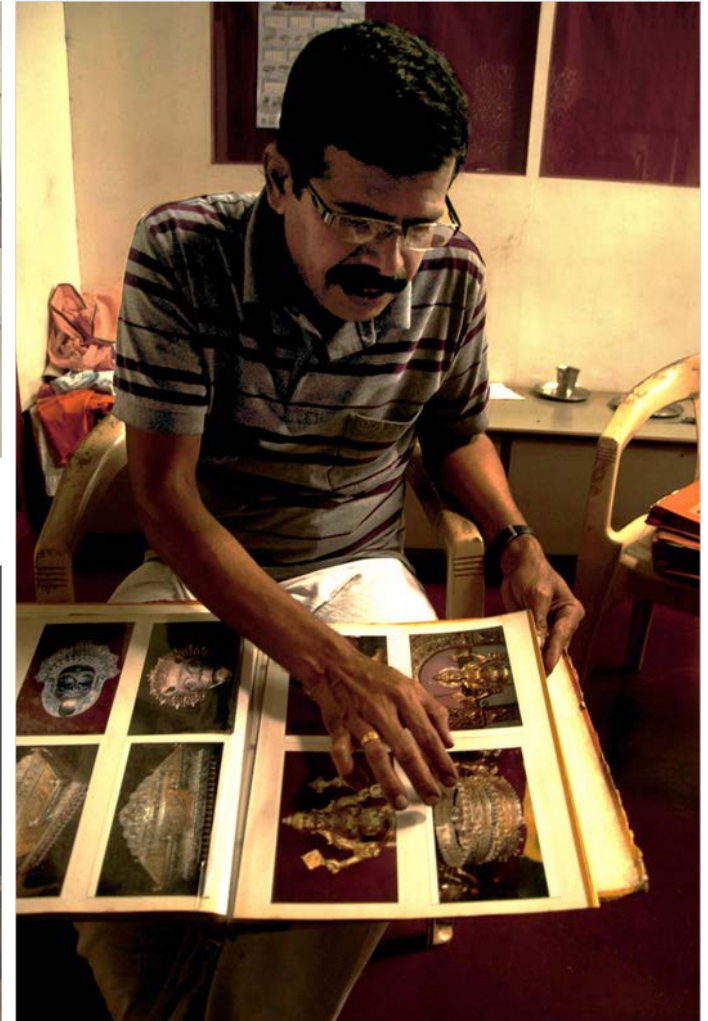
1. Introduction
2. Artisans
3. Location
4. Tools and Raw Materials
5. Making Process
6. Products
7. Contact Details



Group of artisans.



Famous Krishna temple of Udupi.



Artisan Ganapathy Acharya sharing the photographs of his rare and finest collection of art.

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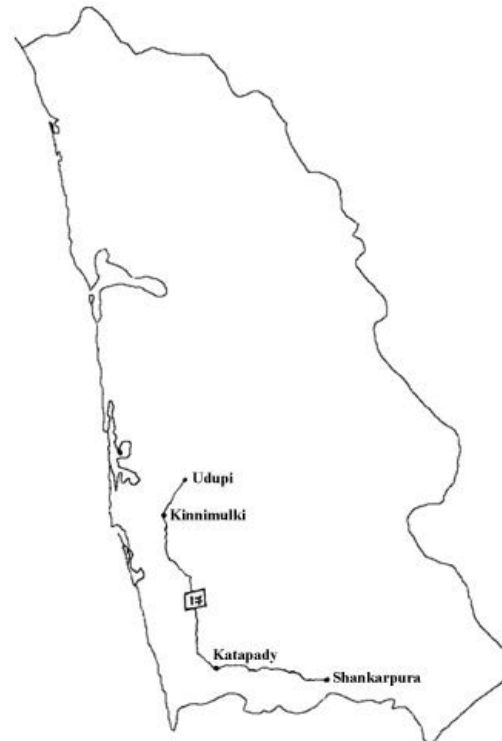
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Location

LOCATION

To reach to Shankarpura, one has to take a bus route from Udupi Via Kukkikatte, Katapady, and finally Shankarpura



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Tools and Raw Materials

The tools and raw materials used in metal casting and sheet metal embossing are:

- **Metals:** Silver, Copper, Brass, Bronze and Gold are the 5 main raw materials used for making products.
- **Clay:** Clay is used to creating a rough model of the product to be made, and also to coat over the wax model.
- **Wax:** Bee wax is used to create the wax model. The wax is coated on the earlier prepared rough clay model of the product to be made. Lathe machine: It is used to turn the object while making wax model and carving process.
- **Wooden Mallet:** It is used for beating during the carving process.
- **Compass:** It is used for scaling as well as to determine the dimensions of the face of the idol.
- **Chisels:** Different sizes of chisels are used in the casting process.
- **Scissors:** A pair of scissors used to cut the metal sheets.
- **Fuel:** Charcoal is used as fuel to produce heat.
- **Sandpaper:** It is used to smoothen the rough surface of the metal image after casting.

1. Introduction

2. Artisans

3. Location

4. Tools and Raw Materials

5. Making Process

6. Products

7. Contact Details

Design Resource

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Engraved Craft

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1. Introduction
2. Artisans
3. Location
4. Tools and Raw Materials
5. Making Process
6. Products
7. Contact Details



Clay is roughly modeled and shaped as per the product to be made.



Rough clay model is fixed to the metal rod of turning machine.



Wax is coated on the clay model. The artist is holding a unique tool which is like a "S" at its end.

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1. Introduction
2. Artisans
3. Location
4. Tools and Raw Materials
5. Making Process
6. Products
7. Contact Details



Turning Machine used while shaping the wax models.



Wood model is used for making sheet metal products.



Lacquer / Wax board used while engraving the designs on the sheet metal products.

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Source:

<https://dsource.in/resource/metal-casting-and-silver-embossing/tools-and-raw-materials>

1. Introduction
2. Artisans
3. Location
4. Tools and Raw Materials
5. Making Process
6. Products
7. Contact Details



Compass, wooden mallet and other varieties of carving and casting tools.



Sharp edged chisel used for creating detailed engraving work.



Wooden Mallets are used for flattening the wax pieces.

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Engraved Craft

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<https://dsource.in/resource/metal-casting-and-silver-embossing/making-process>

Making Process

The Products are made in two different methods.

- Lost Wax Model Casting Method
- Sheet Metal Embossing Method

The lost-wax process is done with the help of mould and then fine carvings are done on the casted idol. Whereas, the embossing method is carefully done to create three-dimensional feel over the flat metal sheet. The metal can be silver, brass, bronze, gold and copper.



Casting Method



Embossing Method

1. Introduction
2. Artisans
3. Location
4. Tools and Raw Materials
5. Making Process
 - 5a. Casting Method
 - 5b. Embossing Method
6. Products
7. Contact Details

Design Resource

Metal Casting and Silver Embossing

Engraved Craft

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Casting Method

A rough piece of an idol to be made is first created with clay. The prepared wax mix is slightly warmed for flexibility and then coated on the clay model. Fine carvings and detailing work are done on the wax model. This wax figure is again coated with the clay twice or thrice. Several coatings of clay help to protect the wax model. Once the clay coating is done, it is allowed to dry under shade for two days.

The dried mould is hard enough for the heating process. Clay coated wax model is heated at a very high temperature, inside the hot chambers from which the wax is melted and comes out. Now the metal Panchaloha (or it can be Brass depending on the requirement) is melted and poured into the mould. This metal goes inside and occupies the entire empty portion within the mould. The metal-filled mould is allowed to cool for one day. After cooling, the mould is carefully broken and the product is revealed. Now the artisan incises to obtain the final finish and embellish the facial expressions, clothing and ornamentation of the idol. The image is finely polished to achieve shine and luster.



Rough base clay model is being turned for shaping.



The surface of the clay model is being smoothened before coating wax.

1. Introduction
2. Artisans
3. Location
4. Tools and Raw Materials
5. Making Process
 - 5a. Casting Method
 - 5b. Embossing Method
6. Products
7. Contact Details

Design Resource

Metal Casting and Silver Embossing

Engraved Craft

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Source:

<https://dsource.in/resource/metal-casting-and-silver-embossing/making-process/casting-method>

1. Introduction
2. Artisans
3. Location
4. Tools and Raw Materials
5. Making Process
 - 5a. Casting Method
 - 5b. Embossing Method
6. Products
7. Contact Details



Beating with wooden mallet flattens wax sheet.



The sheet is cut according to the design to fit it on the mould.



Wax is slightly warmed to make it soft for easy application.

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Engraved Craft

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Source:

<https://dsource.in/resource/metal-casting-and-silver-embossing/making-process/casting-method>

1. Introduction
2. Artisans
3. Location
4. Tools and Raw Materials
5. Making Process
 - 5a. Casting Method
 - 5b. Embossing Method
6. Products
7. Contact Details



The clay mould is heated before applying the wax.



Warmed wax is coated around the finished clay model.



The excess wax is cut and removed.



Roughly shaped wax model of a product.

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Engraved Craft

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Source:

<https://dsource.in/resource/metal-casting-and-silver-embossing/making-process/casting-method>

1. Introduction
2. Artisans
3. Location
4. Tools and Raw Materials
5. Making Process
 - 5a. Casting Method
 - 5b. Embossing Method
6. Products
7. Contact Details



Wax is rolled to make a long wire type to be used for decorating the product.



Extra wax roll is added to obtain the shape as per requirement.



Melting the excess wax with the help of heated iron blade to shape the uneven surface.



The wax-coated model is again turned on lathe machine for shaping.

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Engraved Craft

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Source:

<https://dsource.in/resource/metal-casting-and-silver-embossing/making-process/casting-method>

1. Introduction
2. Artisans
3. Location
4. Tools and Raw Materials
5. Making Process
 - 5a. Casting Method
 - 5b. Embossing Method
6. Products
7. Contact Details



The Artisan melts wax to fill up small gaps or openings.



The artisan constantly keeps his leg in touch with the support system (i.e. mallet and a wooden piece kept under his hand) under the Lathe to get fine finishing on the wax model.

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Metal Casting and Silver Embossing

Engraved Craft

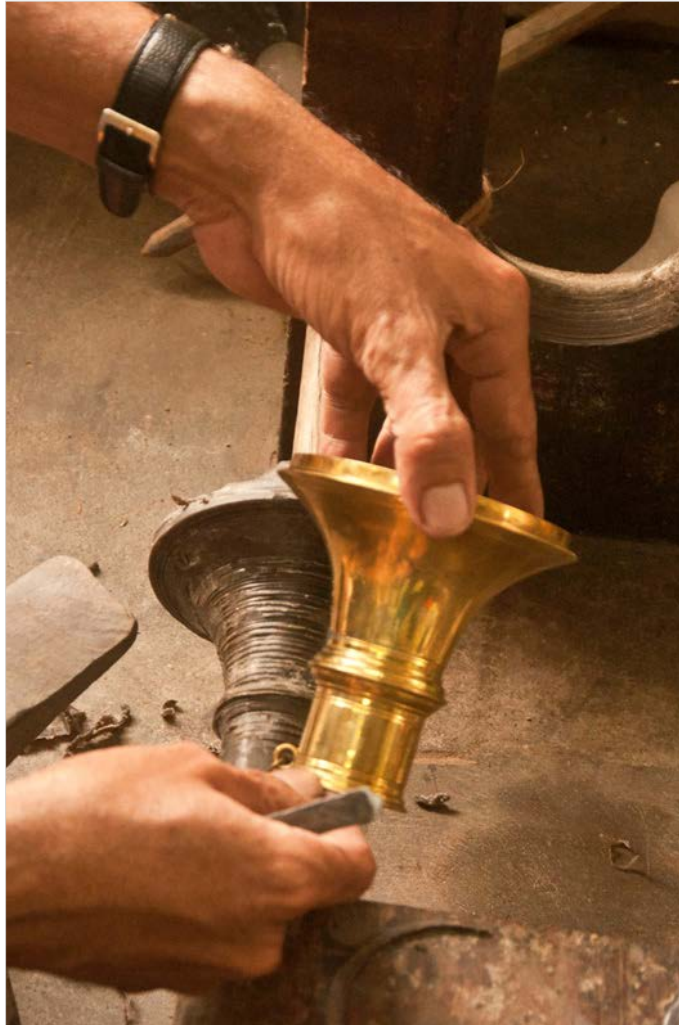
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<https://dsource.in/resource/metal-casting-and-silver-embossing/making-process/casting-method>

1. Introduction
2. Artisans
3. Location
4. Tools and Raw Materials
5. Making Process
 - 5a. Casting Method
 - 5b. Embossing Method
6. Products
7. Contact Details



Master piece is compared with the wax mould throughout the process to ensure proper form.



Turning process helps in creating accurate sharp and curved edges of Naadaswaram.

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Engraved Craft

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Source:

<https://dsource.in/resource/metal-casting-and-silver-embossing/making-process/casting-method>

1. Introduction
2. Artisans
3. Location
4. Tools and Raw Materials
5. Making Process
 - 5a. Casting Method
 - 5b. Embossing Method
6. Products
7. Contact Details



Artisan uses a flat edged tool to remove the excess wax.



The casted product is the part of traditional Naadas-waram.



Clay coated wax model is melted and metal is poured inside to take shape of model.

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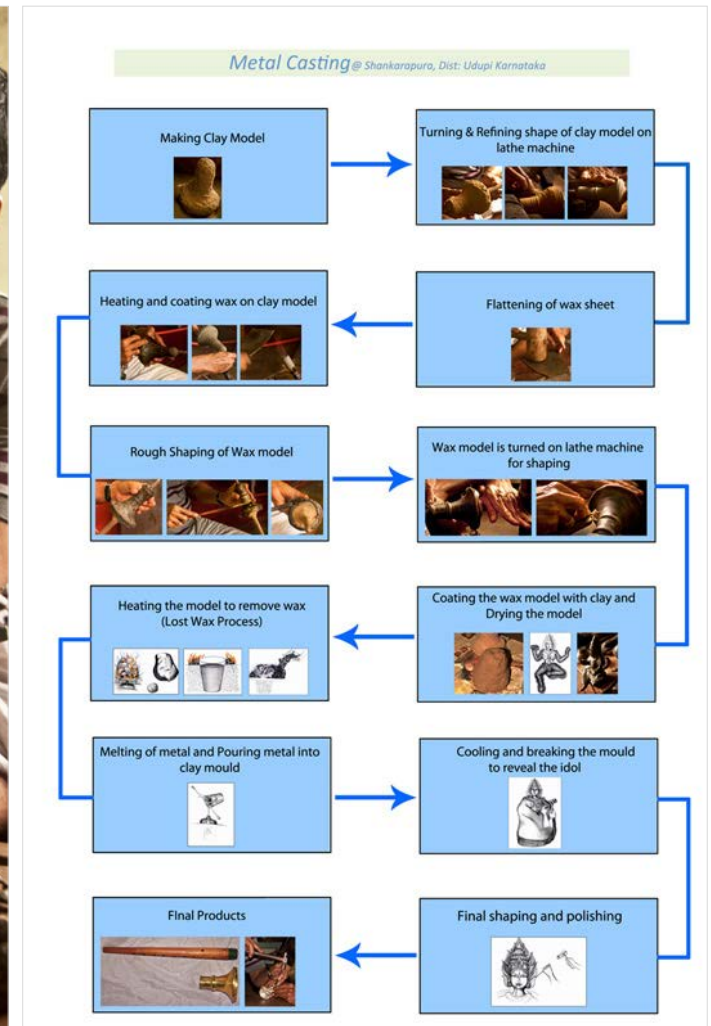
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The upper part of Naadaswaram is wood and it is fixed with brass metal end piece.



Detailed flow chart of casting and idol making process.

1. Introduction
2. Artisans
3. Location
4. Tools and Raw Materials
5. Making Process
 - 5a. Casting Method
 - 5b. Embossing Method
6. Products
7. Contact Details

Design Resource

Metal Casting and Silver Embossing

Engraved Craft

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Source:

<https://dsource.in/resource/metal-casting-and-silver-embossing/making-process/casting-method>

1. Introduction
2. Artisans
3. Location
4. Tools and Raw Materials
5. Making Process
 - 5a. Casting Method
 - 5b. Embossing Method
6. Products
7. Contact Details



Idols are casted in the same process and the detailing is engraved on it.

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Metal Casting and Silver Embossing

Engraved Craft

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Source:

<https://dsource.in/resource/metal-casting-and-silver-embossing/making-process/embossing-method>

Embossing Method

In Shankarapura, embossing is done completely in different methods. Initially, the detailing work of the product, its size and shape of the idol is made using wood. Then the thin metal sheet is placed on the surface of the wooden model and then it is gently beaten to take the shape and detailing of the wood. Different parts of the product are done with the same technique and then the parts are fixed together. In case of Mantapa-Chariot, Legs and Upper part are made separately and fixed. The product is polished for a longer shine and luster.

Also, there is another method of embossing, wherein the detailed drawing of the product is done first on paper. Then it is pasted on a sheet of metal and then finally the sheet is put on a surface that is smeared with lacquer or wax. And then the embossing work is started with different types of chiselling and hammering tools, very gently, so that the required embossing can be achieved, but the sheet remains intact without any cuts and holes.



The sheet is placed in the wood model to emboss the designs.

1. Introduction
2. Artisans
3. Location
4. Tools and Raw Materials
5. Making Process
 - 5a. Casting Method
 - 5b. Embossing Method
6. Products
7. Contact Details

Design Resource

Metal Casting and Silver Embossing

Engraved Craft

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Source:

<https://dsource.in/resource/metal-casting-and-silver-embossing/making-process/embossing-method>

1. Introduction
2. Artisans
3. Location
4. Tools and Raw Materials
5. Making Process
 - 5a. Casting Method
 - 5b. Embossing Method
6. Products
7. Contact Details



Design reference of an archway, which is kept behind idols of deities in temple



Carved wood model is used as a base for sheet metal embossing.

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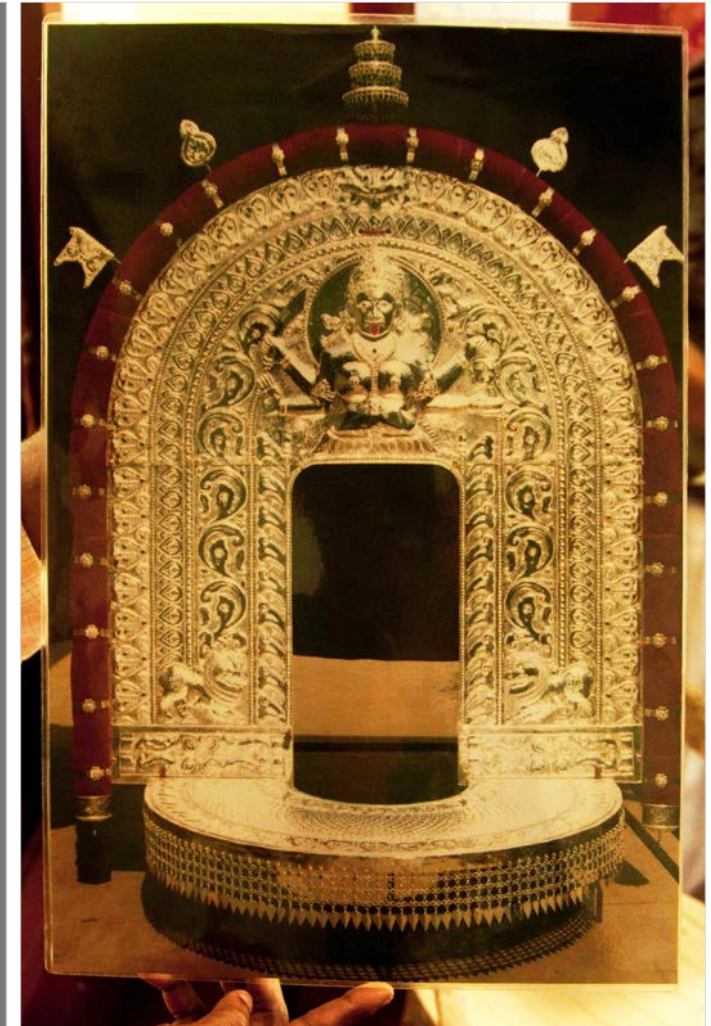
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1. Introduction
2. Artisans
3. Location
4. Tools and Raw Materials
5. Making Process
 - 5a. Casting Method
 - 5b. Embossing Method
6. Products
7. Contact Details



Intricate designs are chiseled.



Artisan displaying sheet metal archway-done for temple.

Design Resource

Metal Casting and Silver Embossing

Engraved Craft

by

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Source:

<https://dsource.in/resource/metal-casting-and-silver-embossing/products>

1. Introduction
2. Artisans
3. Location
4. Tools and Raw Materials
5. Making Process
6. Products
7. Contact Details

Products

Traditionally the ritual products like Idols, Mantapas-Chariots, Kalashas - used in Pooja, Pillars for Temples, Face Masks of Deities are embellished in intricate patterns that are inspired by Flowers, Themes from Epics, Birds like Swan and Peacock, Animals viz. Lion and Elephant and Images of Deities. Another product called 'Prabhavalay' - A backdrop of the decorated archway of the idols in the temple is specially made of silver sheets. All these products are also made with gold, bronze and copper as per the customer's requirement.

The products made with sheet metal (silver, copper and bronze) embossing are:

1. Idols of Gods and Goddesses.
2. Pillars of temples.
3. Embossed figures of the deities, archways and doorways.
4. Pooja items like Kalasha, Arathi plate.
5. Face masks of deities.
6. Chariots and mandapas for the idols.
7. Miniature idols of Lord Rama, Krishna and Hanuman.

The other products made by casting process are:

1. Household utensils.
2. Diyas of various sizes.
3. Huge lamps.
4. Water and storage containers.
5. Order based trophies.
6. Corporate gifts.

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<https://dsource.in/resource/metal-casting-and-silver-embossing/products>

1. Introduction
2. Artisans
3. Location
4. Tools and Raw Materials
5. Making Process
6. Products
7. Contact Details



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Engraved Craft

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2. Artisans
3. Location
4. Tools and Raw Materials
5. Making Process
6. Products
7. Contact Details

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1. Introduction
2. Artisans
3. Location
4. Tools and Raw Materials
5. Making Process
6. Products
7. Contact Details