

Design Resource

Marble Idols - Agra

Making of Idols

by

Prof. Bibhudutta Baral, Divyadarshan C. S. and

Vijay G.

NID Campus, Bengaluru

Source:

<http://www.dsource.in/resource/marble-idols-agra>



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

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

Introduction

Marble is a distinctive type of stone made naturally occurred from limestone. Marble as a medium to sculpt statue is appreciated by many of great sculptors. Marble is derived from a Latin word marmar, which has come from a greek word “marmarous” meaning the shining stone. Marble locally in the northern India is known as sange-marmar. The main constituents of marble is calcium and dolomite. The hardness of marble ranges from 2.5 to 5 on the moh's scale.

- a. **Dolomite:** If it has more than 40% magnesium carbonate.
- b. **Magnesium:** If it has between 5% and 40% magnesium.
- c. **Calcite:** If it has less than 5% magnesium carbonate.

In the earth crust, marbles can be found interblended with metamorphic rocks like phyllites, mica schists, granulites etc. which are in the older layers of earth's crust and formed due to extreme folding and igneous incursion, in the region of makrana (Rajasthan) the change of limestone's rich fossils are turned into true marble, which is a common phenomenon in such metamorphic region. White and gray marble which are found different parts of India and also abroad they are in the recrystallized rock form. Many of these places are quarried from 1000s of years and are still in use. Legendary sculpture like Michelangelo and Antonio Canova has used marbles of these region to sculpt extraordinary statue. The purest form of marble also consist of a impurity such as small rounded grains, dark shining flaks of graphite, iron oxides, colorless pale yellow mica and silicate of lime and magnesia. Many of the minerals, semi-precious and gems like biotite, talc, zoisite, chlorite, forsterite, garnet, titanite, spinel, vesuvianite, and tourmaline are found in the same layer where marble is found. Due the presence of silicate minerals different colors of marbles are obtained. Green color marble is obtained due to the presence of green pyroxenes and amphiboles, brown from garnet and vesuvianite, yellow color from epidote, chondrodite and titanite, black and gray color from graphite present in marbles. Sometimes interesting patterns may be seen on the marble, when calc-silicate rock bonds with marble and form nodules and patches, marble statue with calc-silicate bonds are hard to finish because of the variation in the hardness between the layers of marble.

The extraction of marble from the mine are done with a limited amount of explosion because usage of too much explosion may shutter the rock. Large channeling machine are used to cut a deep slice into the marble which are about 2 to 3 inch wide, due to the natural cracks present in the marble stone, it is easy to spill into the required size. The large size marble is fed into the saw mills, where they are cut into required size slabs, sets of parallel iron blade cut through marble which moves back and forth, a mixture of sand and water is fed to the blade to ease the cutting process. The marble stone is machined with carborundum wheels for smooth surface and finer grades of abrasive are used for polishing. Throughout the process, even with most high tech machineries, about 50 % of the stone is wasted. Small chunks of marble are used in terrazzo flooring and stucco wall finish.

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Identification of marble from other contemporary stone:

1. To identify the stone, make sure its surface is free from grime, dirt and debris by washing it, these impurity may effects in the identification process.
2. Marbles has very smooth and silky and this can be checked by touching the surface of it. If there is any roughness on the surface, then the stone is not a pure marble.
3. Looking at the material from different angle should give out glossy and almost translucent effect. Marbles are high reflective and shiny once polished.
4. Looking at the patterns on the marble gives a idea about the purity of stone. Grains, which runs through the marble, fluid line that create a unsystematic pattern, swirl and smudge of lines. If the stone has crystal like marking and speckles are seen, then the stone is likely to be granite.
5. 100 % pure marble are available in very limited colors, like white, black, grey, cream and red. If marbles are available in colors like bright green, pink and yellow, it is said that, the stone contains impurities.
6. Marbles are heavy compare to its contemporary. By lifting a small piece if marble, the heaviness can be felt. Many time granite are also found as heavy as marble but the identification can be done with the help of textures and patterns.
7. Marbles does not absorb water, so by splashing water on its surface. If the water seeps in, then the stone is not marble.
8. Using a pocket knife scratch the surface of the marble, there should be no or very less mark seen on the surface. If a deep cut can be seen, then it's not marble.
9. Mable statue generally craved out of single piece, so the base would be always solid and not hollow.
10. By examining the marble with a magnifying glass, if the core is easily visible with fewer marks, it is valued for more price.
11. Brightness of color and symmetry of design also pay's higher price.

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Tools and Raw Materials

Some of the tools and raw materials essential for marble sculpture - agra are as follows:

- **Marble:** Main raw material for sculpting.
- **Hammer:** For heaving hammering.
- **Mallet:** Wooden hammer for lighter hammering.
- **Chisels:** To carve and sculpt the stone.
- **Sandpaper:** Used in sanding process.
- **Wax Polish:** Used for polishing marble.
- **Buffing Machine:** To bring shine onto the surface of marble.
- **Power Tools** (Air chisel, Die grinder, Circular saw, Angle grinder): These tools are used for faster productivity.
- **Pencil:** To mark the proportion.



Different types of chisels are used to carve out the idol.

1. Introduction

2. **Tools and Raw Materials**

3. Making Process

4. Products

5. Panorama

6. Contact Details

Design Resource

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Making of Idols

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Silver leaves are used to embellish the sculptures.



Carborundum stone is used to smoothen the marble surface and bring out shine.



Different sizes of paint brushes are used to color the idols.

1. Introduction
2. **Tools and Raw Materials**
3. Making Process
4. Products
5. Panorama
6. Contact Details

Design Resource

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1. Introduction
2. **Tools and Raw Materials**
3. Making Process
4. Products
5. Panorama
6. Contact Details



Tools used to carve marble idols into required shapes.



Sand paper is used to smoothen the rough edges.



Natural colors extracted from stones are used to color the idols.

Design Resource

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Making Process

Craftsman starts the sculpting process by the selection of the stone, based on the order given by the customer. Generally, the set of tools consist of hammer, mallet, seven types of different chisel and stone rasp (riffers). Craftsman make reference clay statue of the marble statue he is about to make, clay statue helps in marking the reference point on the marble stone and its shape and proportion can be changed if it is required. After the finalization of the clay statue by the master craftsman or the client, with the help of reference point made on the marble, craftsman start the sculpting process. Even before the craftsman starts the sculpting process, depending on the size of the stone, a pit is dug, which consist of the lose sand which is available locally near the pond or river banks. In case the, the activity in done inside a house or a room, where a pit cannot be dug, and sand bag is used, generally it is made up of jeans or khadi fabric, these fabric creates friction between the stone and bag hence marble stone does not slip or slide while the carving process is going on. Sand bag helps in absorb the vibration created by hammering or chiseling, it prevents in the formation of micro cracks.

Roughing the stone is the 1st step involved in the sculpting process, unwanted stone is removed by heavy hammering and chisel, many of the craftsmen's have been using power tools such as circular saw with a masonry blade or angle grinder with a diamond stone cutting blade, to save time and it also ease their work. Using power tools, craftsmen cut slice's into the marble with a gap of about half inch between each slice. By using the slice technique, craftsman avoid the risk of damaging the statue, which might happen, if large chunks are removed without using this technique. These slices are removed with the help of hammer and flat chisel.

Pointed chisel is used in the 2nd step, using pointed chisel, steep lines are made on the marble, and this process does not aim in removing the large amount of stone, it is only to make guided line, which are used to make the basic/rough shape of the statue, generally the pointed chisel is held at 45 degree angle, but the angle can be changed depending on the hardness of the stone. Craftsman makes line about 2 inches apart in a crosshatch pattern, making small cubes, square or rectangle on the marble surface, which can be removed with the help of chisel. Rather than following contours of the marble stone (which are made by the line), which might just reduce the size of the total marble, craftsman make sure that, the low point on the statue is always kept low and high point is always kept high.

Claw chisel is used in the 3rd step, claw chiseled have 4 pointed tip, and this is used to remove the line which was created by the pointed chisel, with the introduction of each tool which is used on the marble, it is shaped and refined. By the time all the line are removed, the rough anatomy of statue can be seen.

1. Introduction

2. Tools and Raw Materials

3. Making Process

4. Products

5. Panorama

6. Contact Details

Design Resource

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Source:

<http://www.dsource.in/resource/marble-idols-agra/making-process>

1. Introduction
2. Tools and Raw Materials
3. **Making Process**
4. Products
5. Panorama
6. Contact Details

Toothed chisel is used in the 4th step. Toothed chisel has 4 teeth like tip. It is used to remove the marks made by the claw chisel. (Generally, in the marble sculpting, steps are following in the order it is mentioned here, for stones like soap stone and other softer stone, some steps can be vice versa) toothed chisel helps in smoothing the surface of marble. To remove the rough line created by the toothed chisel, flat chisel is used. It helps to remove any uneven surface.

Rasps or rifflers are used in the 5th step, these tools are generally used for the smoothing purpose, and it removes all the marking from the above-mentioned process (1st, 2nd, 3rd, and 4th step). These tools are not to be used to remove large materials from the stone. The key to get the maximum output with help of these tools, is the handling. Generally, these tools should be used in one direction (forward direction), however if a saw action is used, it will damage the tool and blunt its surface. Next, with the help of file tool, one more round of smoothing is done to the surface (this step is optional)

Making the details 6th step, after the body proportion of the statue is obtained, it undergoes fine detailing, in this process, details like eyes, lips, nostrils, nose wings, finger nails, jewelry, texture of dress etc. are created. The details are marked on the marble with a pencil or crayons, ink is avoided as it may seep into the marble and create unwanted results. With the help of air chisel and die grinder, details are carved on the sculpture.

Sanding is the 7th process, in this process sand paper is used to smoothen the surface, diamond sand paper can also be used, but due to the cost factor, silicon carbide sand paper is used. Sanding helps to remove all the minute marks made earlier by the tools. Sanding process starts with 150 grit sandpaper, which can go up to 1000 grits (Depending on the smoothness to be achieved), water proof sand paper is dipped in water and gently rubbed against the marble surface, and too much pressure can damage the fine detailing. It is a very time-taking process and has to be done carefully for fine finishing.

Polishing 8th and final step, buffing wheel is used to polish the surface of the marble, marble wax is polished and applied on the marble and buffed, buffed marble stone statue is then colored as per the requirement of the client, silver varak sheet is fastened to the paint before it dries. varak is generally fastened to the ornamentation of the idol.



Required design is drawn on the marble.

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Source:

<http://www.dsource.in/resource/marble-idols-agra/making-process>

1. Introduction
2. Tools and Raw Materials
3. **Making Process**
4. Products
5. Panorama
6. Contact Details



With a drilling tool the design is carved.



Different size of drilling tools are used according to the type of design.



Electric cutter is used to smoothen the rough edges and remove excess marble.

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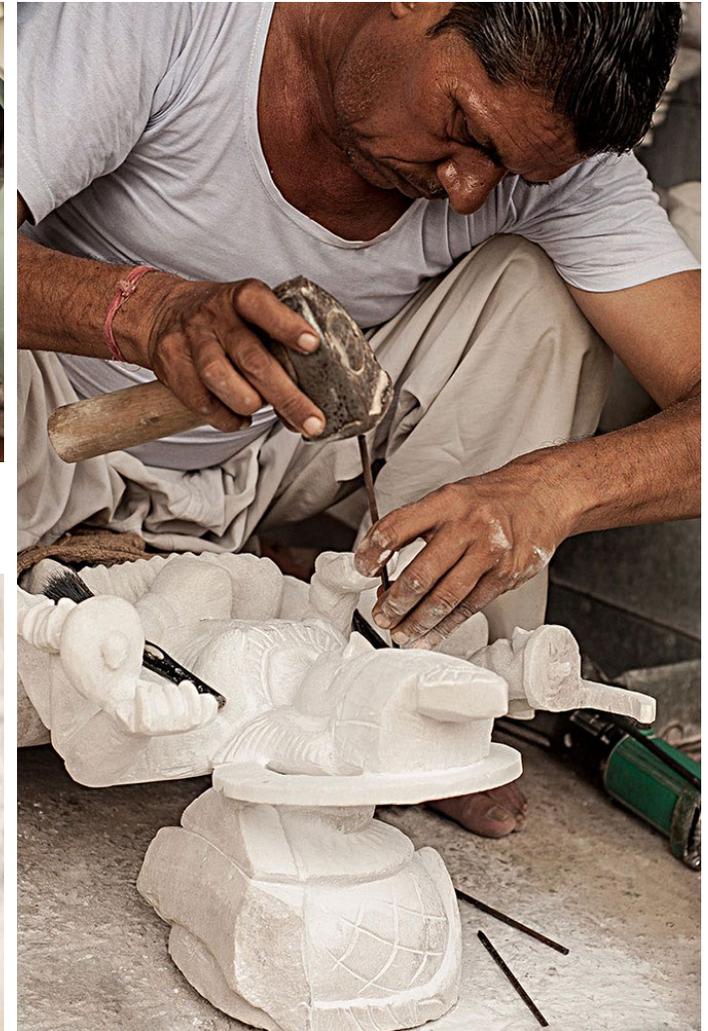
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To carve the facial features measurements are drawn first.



Facial features are carved in the end as it requires more time and preciseness.



The features are carved using small chisel and hammer.

1. Introduction
2. Tools and Raw Materials
3. **Making Process**
4. Products
5. Panorama
6. Contact Details

Design Resource

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Making of Idols

by

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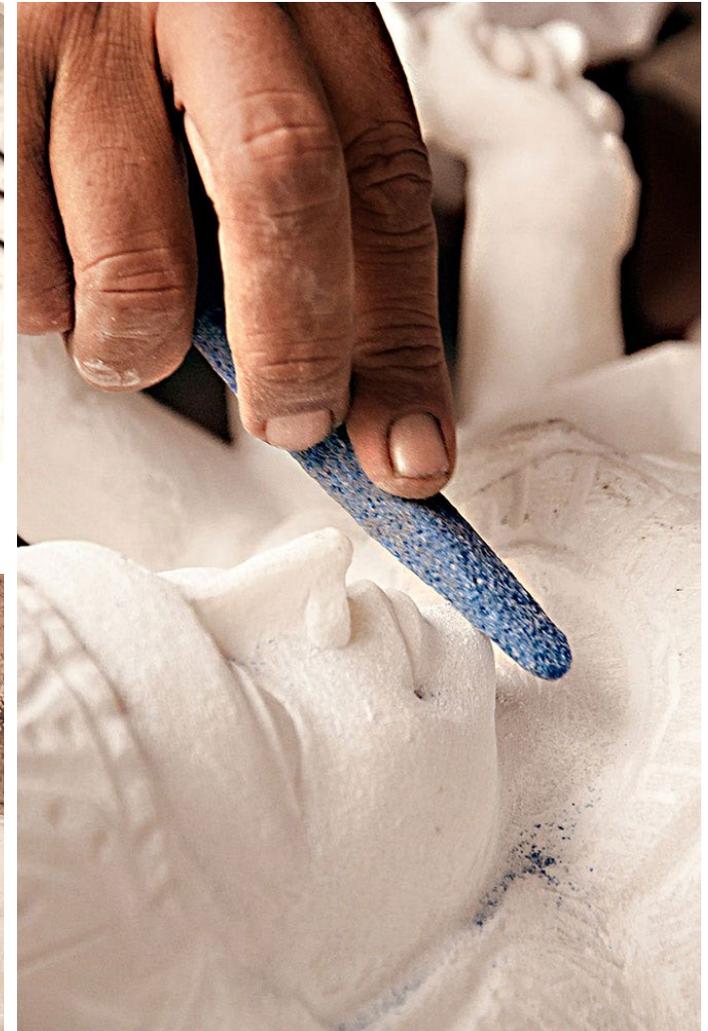
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With the drilling machine the carving is given a proper shape.



Carborundum stone is used to smoothen the marble surface.



Water is poured and rubbed with Carborundum stone to bring out the shine.

1. Introduction
2. Tools and Raw Materials
3. **Making Process**
4. Products
5. Panorama
6. Contact Details

Design Resource

Marble Idols - Agra

Making of Idols

by

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NID Campus, Bengaluru

Source:

<http://www.dsource.in/resource/marble-idols-agra/making-process>

1. Introduction
2. Tools and Raw Materials
3. **Making Process**
4. Products
5. Panorama
6. Contact Details



Natural colors are used to enhance the look of the idols.

Design Resource

Marble Idols - Agra

Making of Idols

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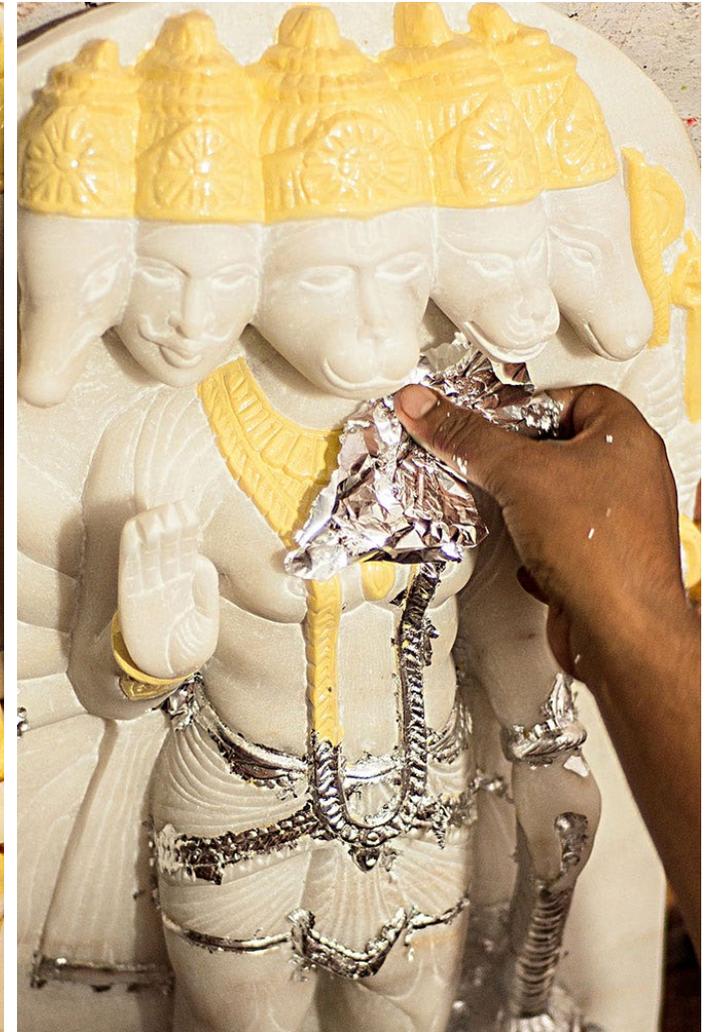
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<http://www.dsource.in/resource/marble-idols-agra/making-process>

1. Introduction
2. Tools and Raw Materials
3. **Making Process**
4. Products
5. Panorama
6. Contact Details



Yellow color is painted on the idol.



Silver leaves are pasted on the yellow paint.

Design Resource

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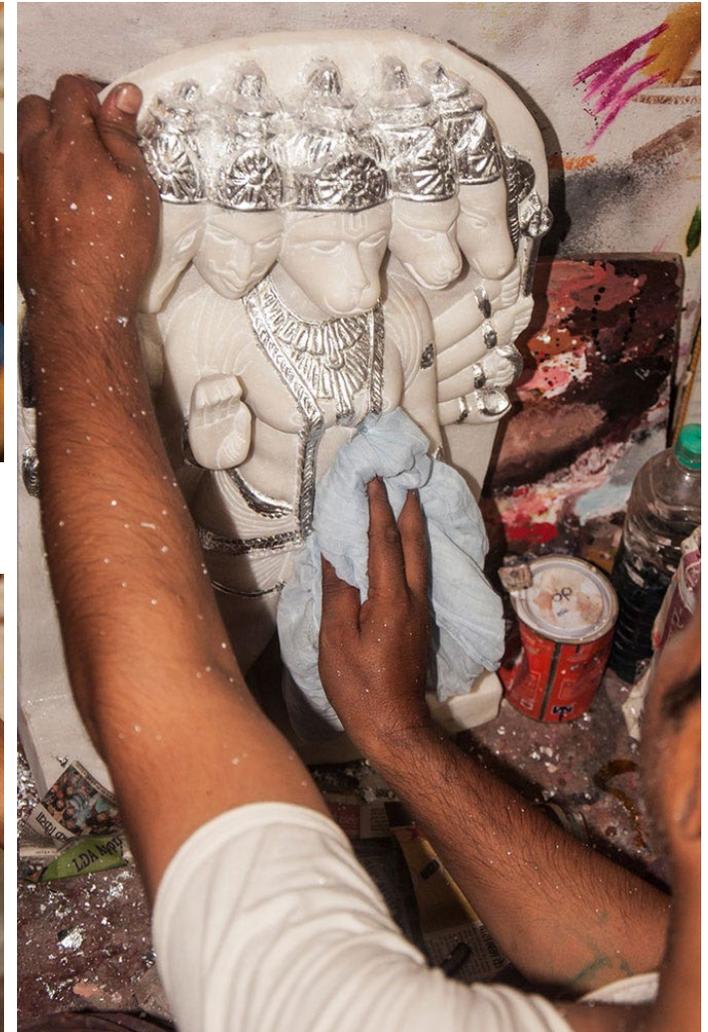
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The leaves are pasted on the areas like jewelry and accessories.



Excess silver leaves are rubbed off using a brush.



After pasting the idol is cleaned using a cloth.

1. Introduction
2. Tools and Raw Materials
3. **Making Process**
4. Products
5. Panorama
6. Contact Details

Design Resource

Marble Idols - Agra

Making of Idols

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Source:

<http://www.dsource.in/resource/marble-idols-agra/making-process>

1. Introduction
2. Tools and Raw Materials
3. **Making Process**
4. Products
5. Panorama
6. Contact Details



Marble idols are painted with natural colors to embellish and decorate the idol.

Design Resource

Marble Idols - Agra

Making of Idols

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NID Campus, Bengaluru

Source:

<http://www.dsource.in/resource/marble-idols-agra/products>

1. Introduction
2. Tools and Raw Materials
3. Making Process
4. **Products**
5. Panorama
6. Contact Details

Products

Artisan produce about 3000 variety of god and goddess idols, the price range starts about 2,500 rs to 1 lakhs. The height of the idol varies from 1 feet to 25 feet (Based on order). The price of the product varies on the type of marble chosen. White color marble is one of the most common color marble used for making the idols of god and goddess. Black color marble idols are also produced but they are only limited to god like shiva and goddess like kali. Apart from the idols, stage from placing the idols are also made. Craftsman are also expert in in making contemporary.



Embellished idols of God Parvitha and Shiva.

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Marble Idols - Agra

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<http://www.dsource.in/resource/marble-idols-agra/products>



Small idol of various forms of Gods.



Marble sculpture depicting Lord Vishnu and Goddess Lakshmi.



Marble idol of Goddess Saraswathi.

1. Introduction
2. Tools and Raw Materials
3. Making Process
4. **Products**
5. Panorama
6. Contact Details

Design Resource

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Making of Idols

by

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Vijay G.

NID Campus, Bengaluru

Source:

<http://www.dsource.in/resource/marble-idols-agra/products>

1. Introduction
2. Tools and Raw Materials
3. Making Process
4. **Products**
5. Panorama
6. Contact Details



Marble idol of Radha and Krishna.



Incomplete idol of Goddess Lakshmi.

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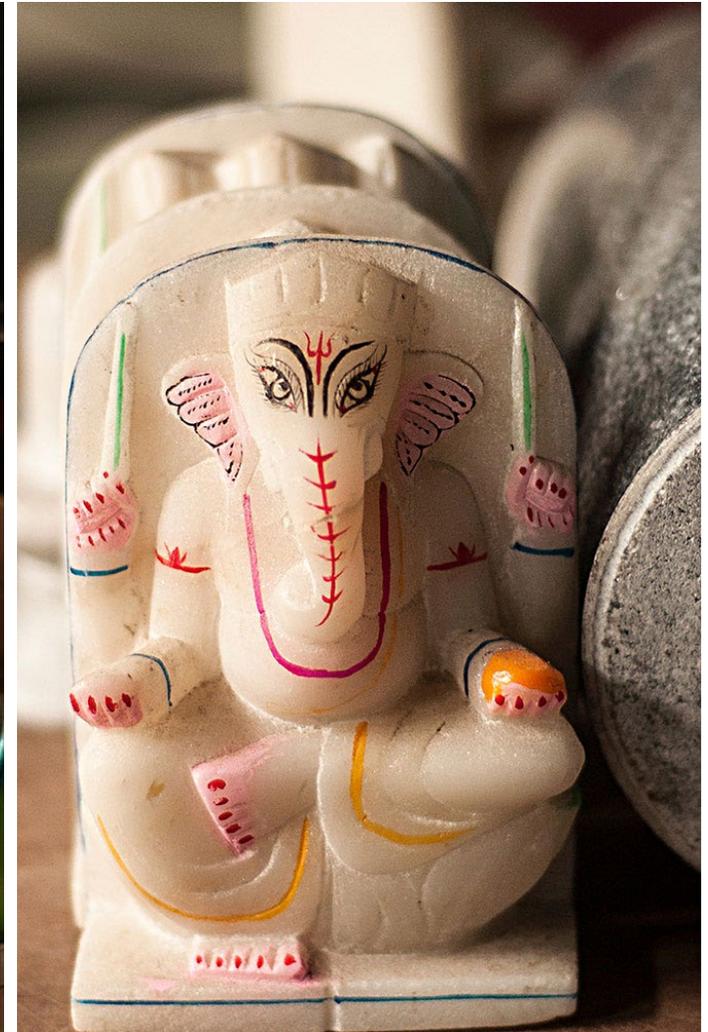
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1. Introduction
2. Tools and Raw Materials
3. Making Process
4. **Products**
5. Panorama
6. Contact Details



Marble idol of Goddess Lakshmi.



Carved out Ganesh idol.

Design Resource

Marble Idols - Agra

Making of Idols

by

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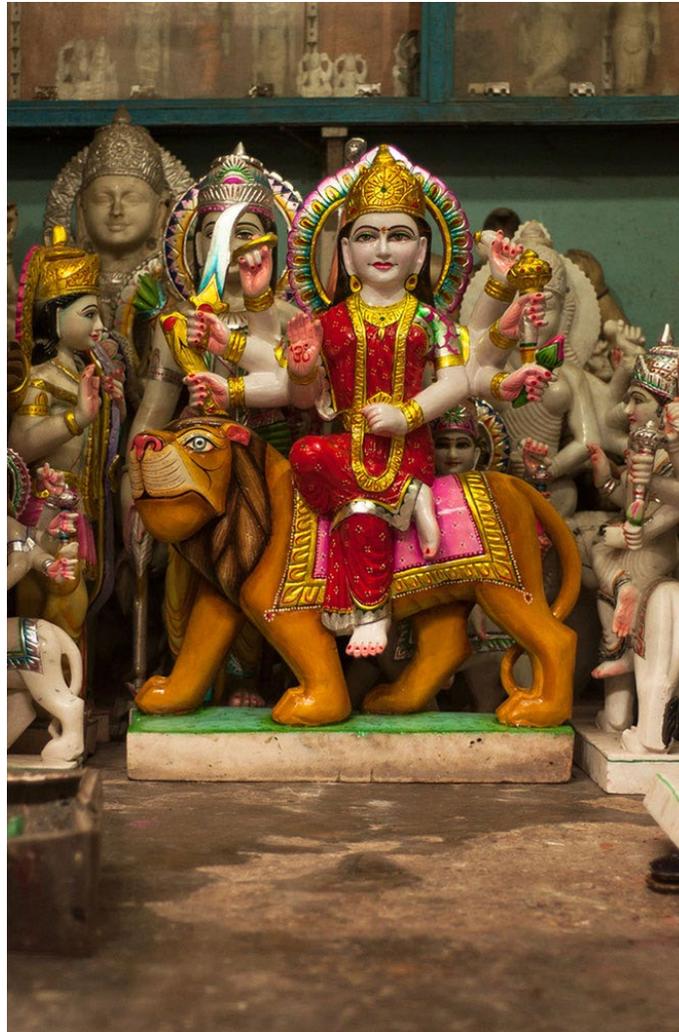
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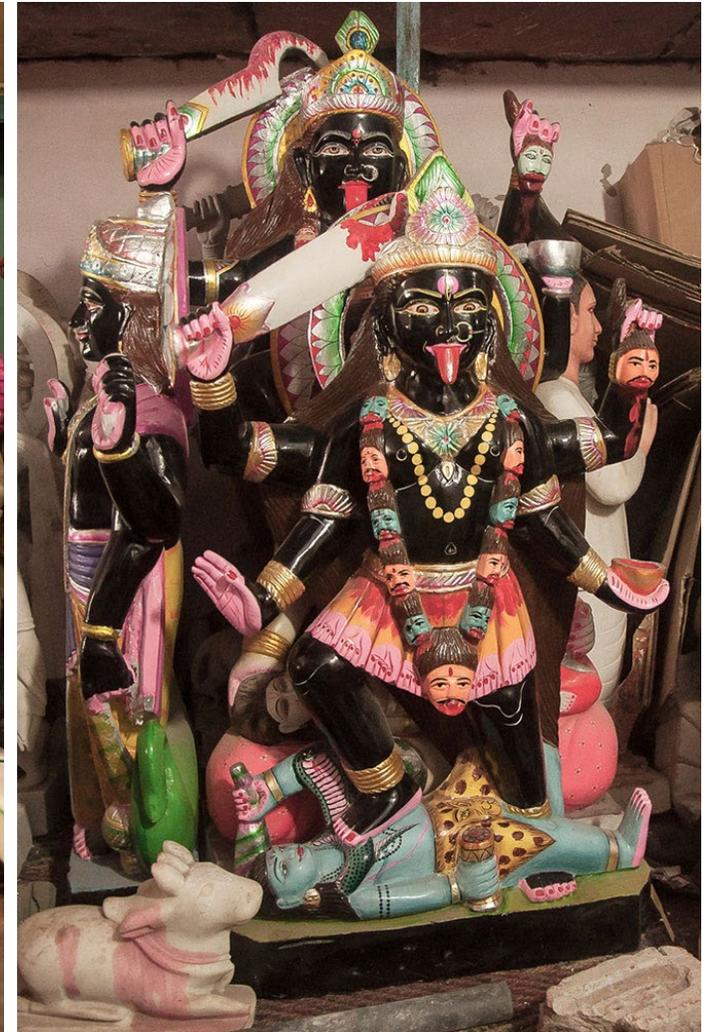
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1. Introduction
2. Tools and Raw Materials
3. Making Process
4. **Products**
5. Panorama
6. Contact Details



Colorful marble idol of Goddess Durga.



Marble idol of Kali Durga.

Design Resource

Marble Idols - Agra

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NID Campus, Bengaluru

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Source:

<http://www.dsource.in/resource/marble-idols-agra/panorama>

1. Introduction
2. Tools and Raw Materials
3. Making Process
4. Products
5. **Panorama**
6. Contact Details

Design Resource

Marble Idols - Agra

Making of Idols

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1. Introduction
2. Tools and Raw Materials
3. Making Process
4. Products
5. Panorama
6. **Contact Details**