Anisotropic Brushed Metal


Anisotropic brushed metal effect visible in the base of the pot

This short tutorial will show you how to create a realistic steel shader with anisotropic reflections to create a brushed metal effect on the base of a pot. Anisotropic reflections are based on the orientation of small grooves (bumps, fibers or scratches) that exist on a reflective surface. We will achieve this effect using a combination of a radial ramp connected to the anisotropy and a noise texture connected to the bump map attribute.

The Maya scene is available here.

> More information about anisotropic reflections can also be found here and here.

- Open the start file here. Select the bottom of the pot and assign a Standard Surface shader to it. Rename it as 'Base'.
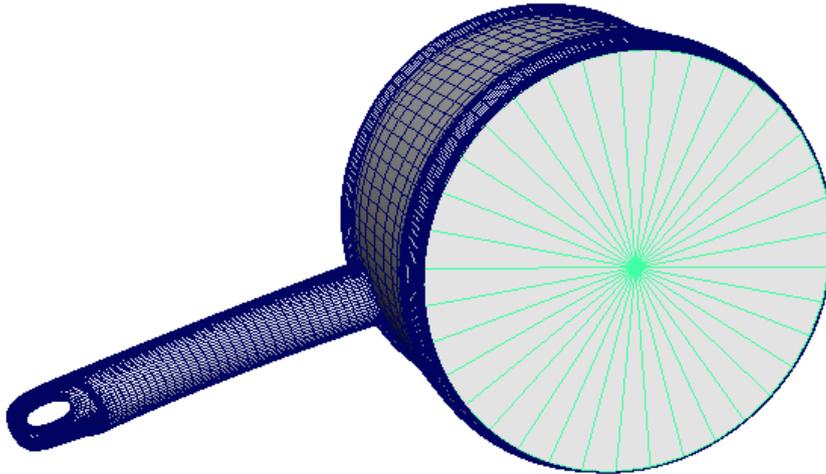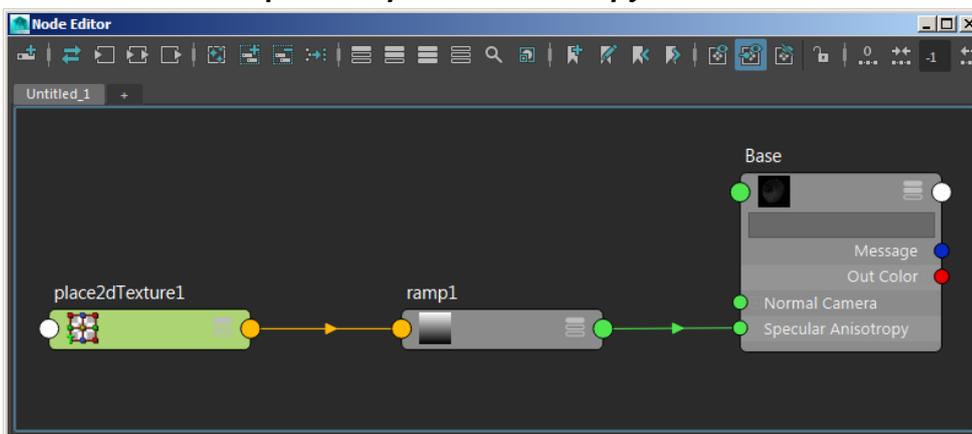
**Assign a Standard Surface shader to base of pot**

Specular Shading

Now we are going to create the steel shader with the brushed metal effect.

- Increase Metalness to 1. Reduce the Specular Color to a mid-grey and increase the Roughness to around 0.8. This will give us a softer anisotropic effect.

- Connect a **ramp** to the *Specular Anisotropy* attribute.

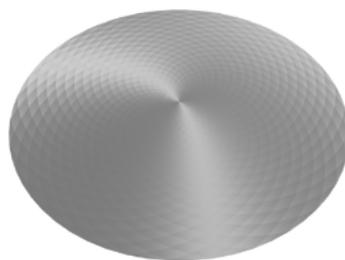**Ramp connected to Specular Anisotropy attribute of Standard shader**

- Change the **Ramp Type** to *Radial Ramp* and change the **Interpolation** to *Smooth.* Insert some black and white colors into the ramp so that it looks like the image below.
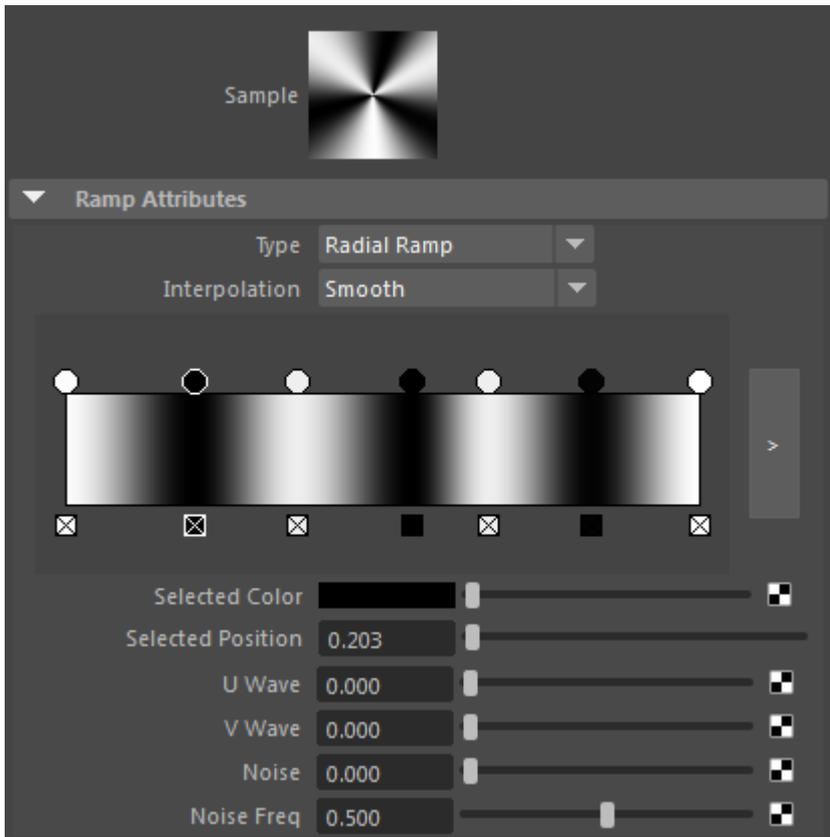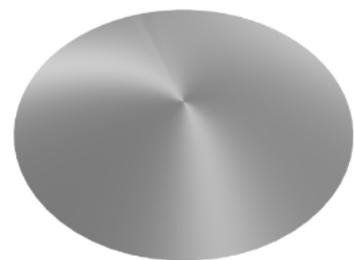

You may notice faceting appear in specular highlights when using anisotropy. It is possible to remove the faceted appearance by enabling **Smooth Tangents** in the Arnold attributes of the mesh . Take into account this requires a **Subdivision Iteration** of at least one in the polymesh to work.
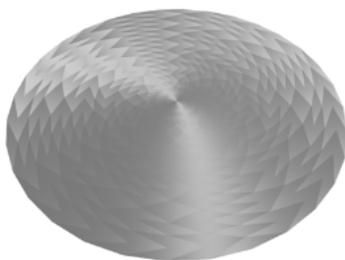
| No Subdivision Iterations | Subdivision Iterations: 1 | Subdivision Iterations: 1 (Smooth Tangents enabled) |

The anisotropic direction is based on the UVs of the mesh you are using. The UVs need to be properly created so that they follow the circular direction of the grooves in world space. This way the ramp is not required and you will get correct anisotropic reflections when the object or camera

position changes.

The Anisotropic brushed metal effect should now be visible at the base of the pot. However, it lacks the bumped ridges associated with this effect.
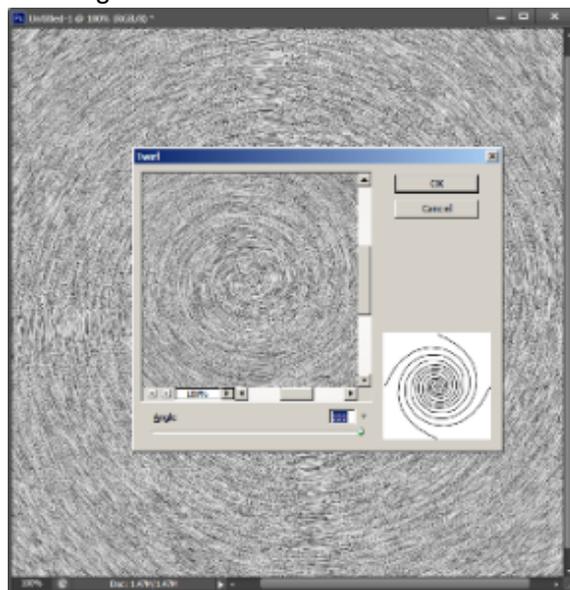
Bump Map

Now we need to create a scratch map and connect it to the bump attribute to achieve a subtle brushed metal effect. We can do this in Photoshop.

- Go to **Filter-> Noise-> Add Noise** to add some noise to the image.
- Go to **Filter-> Distort-> Twirl** to add a circular effect to the noise. You may need to do this two or three times to get the desired effect. Crop the image and save it.
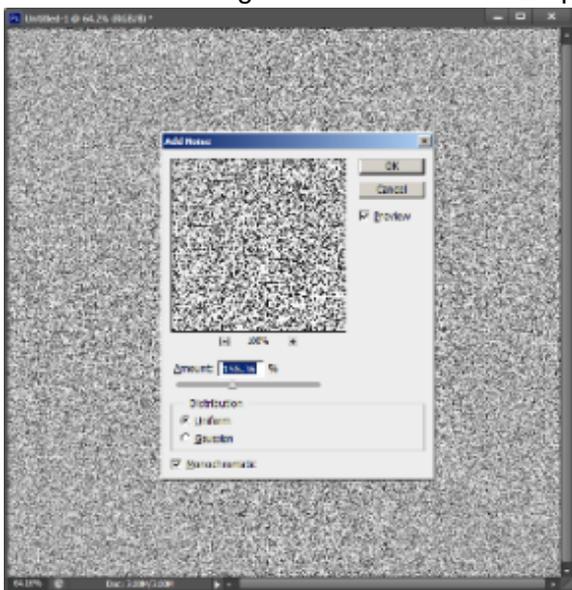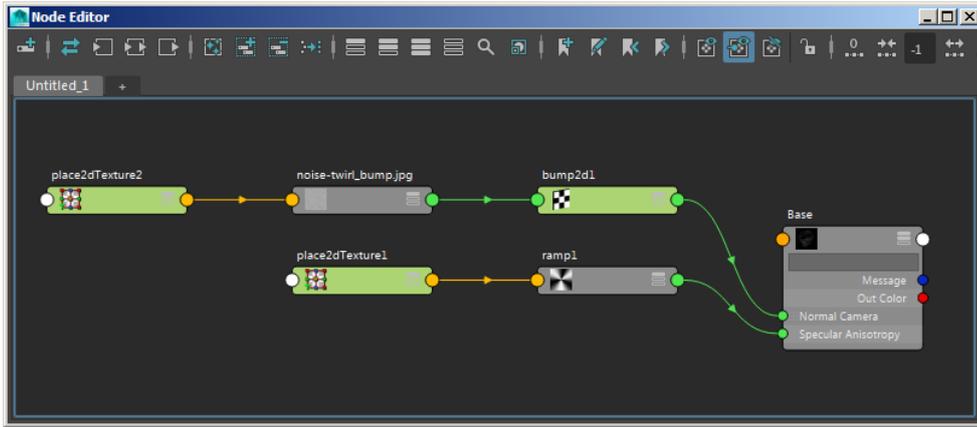

Noise filter in Photoshop   **Twirl filter in Photoshop**

- Create a file texture and open the saved noise image. Connect it to the **bump** attribute of the Base shader.

That concludes this short tutorial on how to create an anisotropic brushed metal shader.