

Application No. 864: Advent window with magnets

Author: Therese Lanter-Haslimeier, Obermumpf, Switzerland

Magnetic pixel image made of Nespresso capsules

I have been collecting Nespresso capsules for 3 years and this year used them to create my first pixel image. It's not only a big job to empty, clean and pound them flat. Finding enough matching colours for the pixel images is even more difficult. There are coffee capsules that haven't been available for more than 10 years. If by chance, I am lucky enough to get my hands on these capsules, I hesitate to glue them on directly.

That's when I had the idea of changeable pictures. I don't glue the coffee capsules onto a canvas; instead, I glue a magnet onto the back of the capsule and then attach them to a whiteboard. This enables me to reuse the coffee capsules and create different images.

My first capsule image is this year's advent window with a Bambi design. This means that the magnetic board is placed outside and is also covered with a thin fabric. Before mounting the magnetic Nespresso capsules, I had to take a few details into account. supermagnete gave me the following helpful advice:

- The weight of the capsule has to be taken into consideration when choosing the magnets. Because of the shear force, the weight has to be multiplied by 6 to calculate the required adhesive force.
- The thickness and type of surface (magnetic board) plays an important part. Ideally, it should be steel with a thickness of at least 2 mm.
- The distance between the magnet and the surface is crucial. Even a distance of half a millimetre between the magnet and the metal surface can half the adhesive force of the magnet.
- Neodymium magnets are not suitable for outdoor use because they could rust.



Advent window with Bambi design

After trying different sizes and thicknesses, I decided on ferrite disc magnets Ø 25 mm (www.supermagnete.de/eng/FE-S-25-05). For these coffee capsules, it was the best size and value for money.

Magnets are unruly! I had to tame them with some trickery. I used an old baking sheet and placed the flattened coffee capsules on it with the coloured side facing down. I used silicone as glue, spreading it onto the magnets before sticking them onto the capsules. Because the magnets were attracted to the sheet through the aluminium capsules, I didn't have to weigh anything down. I did, however, have to pay close attention to ensure that all the magnets were glued onto the coffee capsules in the same direction so I could easily stack them afterwards.

The 10 piece stacks had to be reversed when placed side by side because they would otherwise repel each other. Carrying two such boxes on top of one another wasn't possible either; without warning the coffee capsules in the bottom box stuck to the upper box. But, with discipline and great care, I was able to control the magnets and they served me well for my advent window.



And so my second pixel image with 2 000 coffee capsules and magnets, respectively, turned into an advent window for everyone to see. Come spring, I will slightly rearrange the coffee capsules and add different colours to create a new pixel image.

You can follow the project at any time at www.designambach.ch or on www.facebook.com/designambach.



The following video shows the advent window being revealed to the public:

YouTube Video: www.youtube.com/watch?v=Z67LQg78mHw

Articles used

FE-S-25-05: Disc magnet Ø 25 mm, height 5 mm (www.supermagnete.de/eng/FE-S-25-05)

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