Update on Double Circle Real 5×5×5 and Introduction of the WOW5 Puzzle Ring

by:

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Double Circle Real $5\times5\times5$

At G4G11, I presented the Double Circle Real $5\times5\times5$. 
The Double Circle Real 5×5×5 is a 1×1×1 inside a 3×3×3 all inside of a 5×5×5. At G4G11, it was still a work in progress. It is now complete and functions as designed. I am so proud of it that I wrote an article about it for the *Game & Puzzle Design* journal. That article has now been published and it was so well received that the image chosen for the cover was a rendering of the Double Circle Real 5x5x5 mechanism.

WOW5: Wrap O-round Weave Five

WOW5 is a 5 band puzzle ring where the weave pattern interlocking the 5 bands extends around the entire 360 degree circumference of the ring.
Why make the WOW5 puzzle ring?

On traditional puzzle rings the weave only covers a fraction of the circumference. There are reasons for this:

- Puzzle rings are cast from molds and puzzle ring producers want to make all the various sizes of rings from a single set of molds. The straight sections opposite the weave allow a region where material can be cut and removed without affecting the puzzle.
- Many weave patterns would simply result is a ring which was locked in the solved state if the weave were extended all the way around.

The weave tends to be the feature that is highlighted at the top of the ring when worn. But the ring can rotate on the finger and can look odd or be uncomfortable if its not centered at the top of the finger.
The Weave Pattern

Weave Five is a weave pattern published by Bram Cohen as ASCII art. I examined the weave and believed it would allow for disassembly as a wrap around design but wasn’t certain until I had made one.

60°
How was WOW5 made?

It was 3D printed. But the ring must be printed in the scrambled state.

• A 3D model is created via CAD and this model is trivial to resize on the computer.
• Shapeways has a pilot program called “interlocking metal” where they connect the interlocking bands with sprues.
• This is now printed in wax using a high resolution printer.
• The wax model is placed in a container. It then has liquid plaster poured over it.
• After the plaster is set the wax is melted and removed allowing the plaster to serve as a mold.
• Molten metal is poured into the mold.
• Once the metal hardens the plaster is broken away.
• The sprues are then cut away and the remaining puzzle bands can be cleaned and polished.
End result...one very hard puzzle ring...

You will all get one printed in laser sintered nylon from i.Materialise as your exchange gift from me. Fortunately nylon allows it to be printed in the solved state. Enjoy...

I’m currently writing up another article for the Game & Puzzle Design journal about WOW5.
Where to next...

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