

Hexagon Sphere Procedure Method

Bob Roehrig

1. Rough Diameter to your liking then measure diameter of cylinder.
2. Mark your Center Line on middle of the cylinder
3. Divide your cylinder diameter by 2 and measure over from the center line to create the outside edges of your cylinder....ie: 5" cylinder = 2 ½ ".
4. Multiply the cylinder diameter by .414. This will give you the "Cord" length of each Hexagon flat.
5. Divide the Cord length by 2. Take this number and layout each side of center line and mark all the way around cylinder.
6. Using your parting tool, go to each outside edge of cylinder and cut down till your outside caliper which is set at your cord length diameter is achieved. You will now have a tenon formed at the diameter of the cord length.
7. With the tool of your choice, cut the left and right cord lengths on each side of the tenon – these are straight cuts at 45 degrees.
8. Multiply Cord length by .26. This gives each side of the 22 ½ degree segment. Lay this out on each side.
9. Cut this laid out line and measure the length of this new flat. This gives the new measurement that the tenon diameter must now be recut to.
10. Cut this new tenon diameter.
11. You are now left with a 16 sided polygon called a Hexadecagon.
12. Using a skew or negative rake scraper, soften (cut) the small points protruding where the angles meet. I use a template to help check as I cut. Get as round as possible in this step.
13. Cut tenons off with a saw and be sure to leave a little extra wood protruding out that will help finish the rounded sphere.
14. Mount two cup chucks on your lathe and mount the unfinished sphere between the cups chucks lining up the center line between the tailstock and headstock.

15. Using a tool of your choice, turn off the nubs using the “Ghost” image you see.
16. Take your skew or tool of choice and finish rounding this area. Put on another center line to use as a guide. Turn the sphere between the chucks and turn and check as you go.
17. Time to sand. Start off with say 80 grit. Sand and turn on axis. Go to next sanding grit and repeat till round. Slow lathe speed down when sanding. Don't go to the next sanding grit till you have fully rotated and sanded the sphere with each grit size.
18. Use finish of your choice. Beall buffing leaves a spectacular finish by the way.

This process can be viewed on various YouTube video links below. First one is from our own PRW Member.....Frank Didomizio

1. <https://www.youtube.com/watch?v=QEjHI5iWeXQ>
2. <https://www.youtube.com/watch?v=KzecGrApLk&t=514s>