

Material: 2 pieces black Delrin stock: 1" x 2" x 3.5".

1. Finish sand 2" x 3.5" mating surfaces of both stock pieces with 320 wet & dry.
2. Scribe center lines for 4 screw holes with the lower line being 25/64" from the bottom edge (3/8" + 1/64" finish sanding allowance).
3. On the scribed stock piece, drill 4 3/8" holes to a depth of 5/8" using a forstner bit.
4. Align both stock pieces & clamp in a drill press vise.
5. Drill 4 5/32" holes, centered in the countersunk holes, through both pieces (tap size hole for 10-24 machine screw).
6. Remove the lower piece and clamp the countersunk hole piece in the drill press vise.
7. Using a chucked 5/32" drill bit as a guide, center a countersunk hole and secure the drill press vise.
8. Drill a 13/64" holes through center of countersunk hole (clearance hole for 10-24 machine screw).
9. Repeat steps 7 & 8 for the remaining 3 screw holes.
10. Remove countersunk stock from drill press vise.
11. Clamp the stock to be tapped, with the mating surface up, in the drill press vise.
12. Using a chucked 5/32" drill bit as a guide, center a screw hole and secure the drill press vise.
13. Chuck a 10-24 tap in drill press and manually tap machine screw threads. Rotate drill with drill bit shank in chuck key hole.
14. Repeat steps 12 & 13 for the remaining 3 screw holes.
15. On mating surface side, chamfer the 4 tapped holes lightly to remove any burrs.
16. Fasten stock halves together with 4 10-24 3/4" machine screws.
17. Sand top & bottom of stock with 320 wet & dry until halves are true (not to exceed 1/64" of material removal from bottom).
18. Secure bearing stock in drill press vise with top facing up.
19. Scribe 2 lines, corner to corner on top, to locate bearing center axis.
20. Scribe 3 lines, 120° apart, from center axis to edge. Scribe mark each of these 3 lines at 7.25 mm from center axis.
21. Drill a 3 mm hole on center axis of bearing to a depth of 1/2" (for lathe spur center).
22. Drill three 4 mm holes, 7.25 mm off center axis of bearing and spaced 120° apart, to a depth of 1/4" (for lathe spur center).
23. Secure bearing in drill press vise with bottom facing up.
24. Scribe 2 lines, corner to corner on bottom, to locate bearing center axis.
25. Drill a 9/32" hole on center axis of bearing bottom to a depth of 2".
26. Chamfer 9/32" center axis hole's bottom edge.
27. Install lathe spur center in bearing stock.
28. Chuck lathe spur center in drill press & adjust live center to center bearing stock in drill press.
29. Set lathe cut depth to 7/8" + 1/64" (finish sanding allowance).
30. Turn bearing stock to round (1-3/4" diameter).
31. Set lathe cut depth to 1/2" + 1/64" (finish sanding allowance) and set spindle cut limits as per drawing.
32. Turn bearing center spindle (1" diameter).
33. Finish sand bearing sides to design dimensions.
34. Set cut depth to 3/8" and set limit to cut bearing top to size + 1/64" (finish sanding allowance).
35. Turn bearing and cut with an appropriate saw, leaving 1" to be sawn manually.
36. Chamfer circular bearing collar edges.
37. Remove bearing from drill press & manually saw remaining bearing top.
38. Drill remaining portion of 9/32" hole along center axis of bearing.
39. Finish sand bearing top & bottom (do not exceed 1/64" material removal).
40. Chamfer 9/32" center axis hole's top edge.