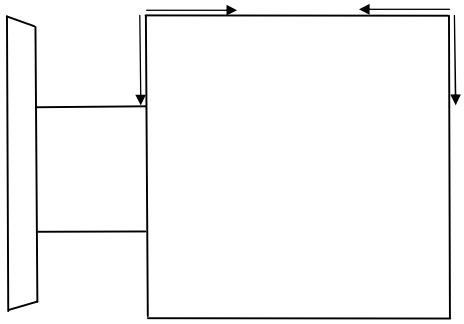
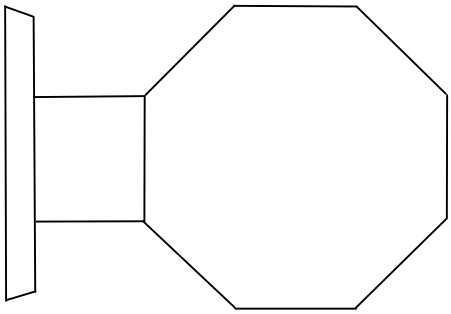
The Easy Way To Approach Ball Cutting

Many jigs have been tried and built, all with varying degrees of success. I now use the method described below, it produces an accurate ball, equally as good as previous methods.

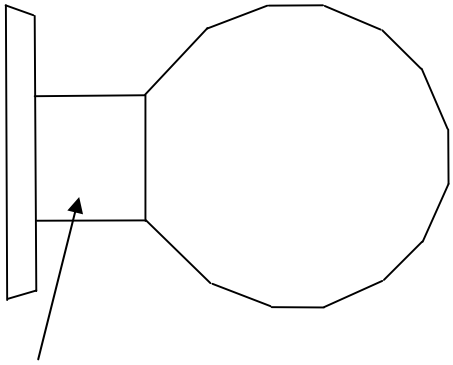
Use a wood blank which is a little bigger than the diameter you want to make, and about one and a half diameters in length. Turn it into the round, aiming to leave it a bit over-size, and add a dovetail spigot at one end. Mount it firmly in a chuck and square up the free end. Reduce the diameter to about half a millimetre over-size. Measure "One Diameter" from the free end and part in on the waste side of the line to the depth defined as "8 Side" in the table. Clear away as much wood as you can to the left of your parting line. You should now have a piece of timber in the lathe which has an outline the same as this diagram. Mark the corners of the blank, in the positions shown, using the dimension named in the table as "8 Side Trim".





Turn away the 2 external corners, leaving an octagon. It should leave you with a blank which looks like this.

Following the same process using the "16 Side Trim" dimension either side of the 3 external points on the octagon then turn away the 3 main corners. Use a small gouge and sandpaper to remove the remnants of any corners, leaving you with "almost a ball". Don't forget, your blank is only half a millimetre over size so be gentle with the sanding.



Now reduce the diameter of the main spigot to the "16 Side" dimension, and <u>on the single remaining corner</u>, repeat the process detailed in the previous paragraph using the "16 Side Trim" dimension.

By now you will have a ball which can be sealed and polished prior to the final parting off. Very last job will be to hand sand and finish the last little bit.

Jon Simpson.

Octagonal Ball Cutting

Diameter	Radius	8 Side	8 Side Trim	16 Side	16 Side Trim	Eye Dia.	Eye Calip.
30	15	12.3	8.8	6.0	3.2	16.7	7.0
32	16	13.2	9.4	6.4	3.4	17.8	7.5
34	17	14.0	10.0	6.8	3.7	18.9	8.0
36	18	14.8	10.5	7.2	3.9	20.0	8.4
38	19	15.6	11.1	7.6	4.1	21.1	8.9
40	20	16.5	11.7	8.0	4.3	22.3	9.4
42	21	17.3	12.3	8.4	4.5	23.4	9.8
44	22	18.1	12.9	8.8	4.7	24.5	10.3
46	23	18.9	13.5	9.1	5.0	25.6	10.8
48	24	19.8	14.1	9.5	5.2	26.7	11.2
50	25	20.6	14.6	9.9	5.4	27.8	11.7
51	25.5	21.0	14.9	10.1	5.5	28.4	12.0
52	26	21.4	15.2	10.3	5.6	28.9	12.2
53	26.5	21.8	15.5	10.5	5.7	29.5	12.4
54	27	22.2	15.8	10.7	5.8	30.1	12.7
56	28	23.0	16.4	11.1	6.0	31.2	13.1
58	29	23.9	17.0	11.5	6.2	32.3	13.6
60	30	24.7	17.6	11.9	6.5	33.4	14.1
62	31	25.5	18.2	12.3	6.7	34.5	14.5
64	32	26.3	18.7	12.7	6.9	35.6	15.0
66	33	27.2	19.3	13.1	7.1	36.7	15.5
68	34	28.0	19.9	13.5	7.3	37.8	15.9
70	35	28.8	20.5	13.9	7.5	39.0	16.4
72	36	29.6	21.1	14.3	7.8	40.1	16.9
73	36.5	30.0	21.4	14.5	7.9	40.6	17.1
74	37	30.5	21.7	14.7	8.0	41.2	17.3
76	38	31.3	22.3	15.1	8.2	42.3	17.8
78	39	32.1	22.8	15.5	8.4	43.4	18.3
80	40	32.9	23.4	15.9	8.6	44.5	18.7
82	41	33.7	24.0	16.3	8.8	45.6	19.2
84	42	34.6	24.6	16.7	9.0	46.7	19.7
86	43	35.4	25.2	17.1	9.3	47.9	20.2
88	44	36.2	25.8	17.5	9.5	49.0	20.6
90	45	37.0	26.4	17.9	9.7	50.1	21.1
92	46	37.9	26.9	18.3	9.9	51.2	21.6
94	47	38.7	27.5	18.7	10.1	52.3	22.0
96	48	39.5	28.1	19.1	10.3	53.4	22.5
98	49	40.3	28.7	19.5	10.5	54.5	23.0
100	50	41.2	29.3	19.9	10.8	55.7	23.4
102	51	42.0	29.9	20.3	11.0	56.8	23.9
104	52	42.8	30.5	20.7	11.2	57.9	24.4
106	53	43.6	31.0	21.1	11.4	59.0	24.8
108	54	44.4	31.6	21.5	11.6	60.1	25.3
110	55	45.3	32.2	21.9	11.8	61.2	25.8
112	56	46.1	32.8	22.3	12.1	62.3	26.2
114	57	46.9	33.4	22.7	12.3	63.4	26.7
116	58	47.7	34.0	23.1	12.5	64.6	27.2
118	59	48.6	34.6	23.5	12.7	65.7	27.6
120	60	49.4	35.1	23.9	12.9	66.8	28.1