

## GAFFER® CASTING CRYSTAL ANNEALING SCHEDULES. SEMI-OPEN AND OPEN FORMS \*

Thickness inches mm	Anneal Soak Time @ 806°F @ 430°C	Initial Cooling Rate °F/Hr °C/Hr	Initial Cooling Range °F °C	Second Cooling Rate °F/Hr °C/Hr	Second Cooling Range °F °C	Final Cooling Rate** °F/Hr °C/Hr	Final Cooling Range °F °C	Total Elapsed Time
0.5 in 12 mm	2 hr	120 67	806 - 680 430 - 360	240 133	680 - 590 360 - 310	720 402	590 - 70 310 - 21	4 hours 10 mins
0.75 in 19 mm	3 hr	52 29	806 - 680 430 - 360	104 58	680 - 590 360 - 310	312 174	590 - 70 310 - 21	8 hours
1.0 in 25 mm	4 hr	29 16	806 - 680 430 - 360	58 32	680 - 590 360 - 310	174 96	590 - 70 310 - 21	13 hours
1.5 in 38 mm	6 hr	13 7.2	806 - 680 430 - 360	26 14.4	680 - 590 360 - 310	78 43	590 - 70 310 - 21	26 hours
2.0 in 50 mm	8 hr	7.8 4.3	806 - 680 430 - 360	15.6 8.6	680 - 590 360 - 310	46.8 25.8	590 - 70 310 - 21	41 hours 30 mins
2.5 in 60 mm	10 hr	5.2 2.9	806 - 644 430 - 340	10.4 5.8	644 - 554 340 - 290	31.2 17.4	554 - 70 290 - 21	2 days 17 hours
3.0 in 75 mm	12 hr	3.3 1.8	806 - 644 430 - 340	6.6 3.6	644 - 554 340 - 290	19.8 10.8	554 - 70 290 - 21	4 days 5 hours
3.5 in 88 mm	14 hr	2.5 1.4	806 - 644 430 - 340	5.0 2.8	644 - 554 340 - 290	15 8.4	554 - 70 290 - 21	5 days 12 hours
4.0 in 100 mm	16 hr	1.8 1.0	806 - 644 430 - 340	3.6 2.0	644 - 554 340 - 290	10.8 6	554 - 70 290 - 21	7 days 8 hours
4.5 in 113 mm	18 hr	1.6 0.9	806 - 644 430 - 340	3.2 1.8	644 - 554 340 - 290	9.6 5.4	554 - 70 290 - 21	8 days 5 hours
5.0 in 125 mm	20 hr	1.3 0.7	806 - 644 430 - 340	2.6 1.4	644 - 554 340 - 290	7.8 4.2	554 - 70 290 - 21	10 days 9 hours
5.5 in 138 mm	22 hr	1.1 0.6	806 - 644 430 - 340	2.2 1.2	644 - 554 340 - 290	6.6 3.6	554 - 70 290 - 21	11 days 20 hours
6.0 in 150 mm	24 hr	0.9 0.5	806 - 608 430 - 320	1.8 1.0	608 - 518 320 - 270	5.4 3	518 - 70 270 - 21	16 days
6.5 in 165 mm	26 hr	0.7 0.4	806 - 608 430 - 320	1.4 0.8	608 - 518 320 - 270	4.2 2.4	518 - 70 270 - 21	19 days 20 hours
7.0 in 175 mm	28 hr	0.6 0.33	806 - 608 430 - 320	1.2 0.66	608 - 518 320 - 270	3.6 2	518 - 70 270 - 21	23 days 19 hours
7.5 in 190 mm	30 hr	0.5 0.3	806 - 608 430 - 320	1.0 0.6	608 - 518 320 - 270	3 1.8	518 - 70 270 - 21	26 days 6 hours
8.0 in 200 mm	32 hr	0.47 0.26	806 - 608 430 - 320	0.94 0.52	608 - 518 320 - 270	2.8 1.56	518 - 70 270 - 21	30 days 4 hours
8.5 in 215 mm	34 hr	0.41 0.23	806 - 608 430 - 320	0.8 0.46	608 - 518 320 - 270	2.4 1.4	518 - 70 270 - 21	33 days 21 hours
9.0 in 225 mm	36 hr	0.35 0.2	806 - 608 430 - 320	0.7 0.4	608 - 518 320 - 270	2.1 1.2	518 - 70 270 - 21	38 days 22 hours
9.5 in 242 mm	38 hr	0.32 0.18	806 - 608 430 - 320	0.64 0.36	608 - 518 320 - 270	1.9 1.1	518 - 70 270 - 21	42 days 6 hours
10.0 in 254 mm	40 hr	0.29 0.16	806 - 608 430 - 320	0.58 0.32	608 - 518 320 - 270	1.74 0.96	518 - 70 270 - 21	47 days 15 hours

\* Based on: *Schedules for commercial annealing of ordinary ware*. Corning Glassworks. Corning N.Y.1950. **For forms that are able to cool reasonably equally on all sides.**

\*\* Obviously cooling rates of thinner pieces are faster than ordinary kilns lose heat. In those cases the kiln can be allowed to cool at its natural rate.

Revised schedules August 2010