Annealing Thick Slabs (Fahrenheit, rates in degrees per hour)

This annealing chart has been formulated for use with Bullseye clear glass.* It only applies to flat slabs of uniform thickness positioned to cool evenly from top and bottom. If your work is not positioned to cool evenly from top and bottom or is anything besides a flat slab of uniform thickness, select the annealing cycle listed for pieces that are at least twice the thickness of your work's thickest area. Please note, however: even the most conservative annealing cycle may fail if the kiln cannot cool the work uniformly. For more information, see *TechNotes 7: Monitoring Kiln Temperatures for Successful Annealing* at www.bullseyeglass.com.

ANNEALING PIECES OF UNIFORM THICKNESS (RATES IN DEGREES PER HOUR)

THICKNESS	RATE	TEMP	ANNEAL SOAK TIME	1ST COOLING RATE	TEMP	HOLD	2ND COOLING RATE	TEMP	HOLD	FINAL COOLING RATE**	TEMP	HOLD	TOTAL
0.25"/6mm	AFAP	900	1:00	150	800	:00	270	700	:00	900	70	:00	~3:00
0.5"/12mm	AFAP	900	2:00	100	800	:00	180	700	:00	600	70	:00	~5:00
0.75"/19mm	AFAP	900	3:00	45	800	:00	81	700	:00	270	70	:00	~9:00
1"/25mm	AFAP	900	4:00	27	800	:00	49	700	:00	162	70	:00	~14:00
1.5"/38mm	AFAP	900	6:00	12	800	:00	22	700	:00	72	70	:00	~28:00
2"/50mm	AFAP	900	8:00	6.8	800	:00	12	700	:00	41	70	:00	~47:00
2.5"/62mm	AFAP	900	10:00	4.3	800	:00	8	700	:00	26	70	:00	~70:00
3"/75mm	AFAP	900	12:00	3	800	:00	5.4	700	:00	18	70	:00	~99:00
4"/100mm	AFAP	900	16:00	1.7	800	:00	3.1	700	:00	10	70	:00	~170:00
6"/150mm	AFAP	900	24:00	0.75	800	:00	1.3	700	:00	4.5	70	:00	~375:00
8"/200mm	AFAP	900	32:00	0.42	800	:00	0.76	700	:00	2.5	70	:00	~654:00

*This chart is derived from Corning's method as shown in McLellan and Shand (1984), Glass Engineering Handbook, 3rd Edition, New York, McGraw Hill.

**Your kiln may cool more slowly than this rate, and if so it may display an FTC (Failed To Cool) or FTL (Firing Too Long) error message. These messages do not affect the firing.

HOW TO READ THIS CHART IN 5 STEPS

1. Choose a chart from either side of this form based on your preference for units used to express cooling times: Rates in Degrees Per Hour or Rates in Time to Temperature.
2. Calculate the final post-fired thickness of your slab.
3. Match that thickness with the size options listed in the chart's far left column.
4. Focus on the row to the right of your piece's listed thickness. This is now your focal row; it contains all information necessary to successfully anneal your slab.
5. Notice the chart's top row. The boxes in the top row explain the information in the columns below them. Intersect your focal row with the top row to interpret the chart.

As an example expressed in Bullseye's standard chart style, a 2˝ slab of uniform thickness would follow this annealing cycle:

Rate	Temperature	Hold
AFAP	900°F	8:00
6.8	800°F	:00
12	700°F	:00
41	70°F	:00

20201208.AF

Annealing Thick Slabs (Fahrenheit, rates in time to temperature)

This annealing chart has been formulated for use with Bullseye clear glass.* It only applies to flat slabs of uniform thickness positioned to cool evenly from top and bottom. If your work is not positioned to cool evenly from top and bottom or is anything besides a flat slab of uniform thickness, select the annealing cycle listed for pieces that are at least twice the thickness of your work's thickest area. Please note, however: even the most conservative annealing cycle may fail if the kiln cannot cool the work uniformly. For more information, see *TechNotes 7: Monitoring Kiln Temperatures for Successful Annealing* at www.bullseyeglass.com.

ANNEALING PIECES OF UNIFORM THICKNESS (RATES IN TIME TO TEMPERATURE)

THICKNESS	RATE	TEMP	HOLD/ ANNEAL SOAK TIME	1ST COOLING TIME	TEMP	HOLD	RATE/2ND COOLING RATE	TEMP	HOLD	RATE/FINAL COOLING RATE**	TEMP	HOLD	TOTAL MINIMUM TIME
0.25"/6mm	AFAP	900	1:00	0:40	800	:00	0:22	700	:00	0:42	70	:00	~3:00
0.5"/12mm	AFAP	900	2:00	1:00	800	:00	0:33	700	:00	1:03	70	:00	~5:00
0.75"/19mm	AFAP	900	3:00	2:13	800	:00	1:14	700	:00	2:20	70	:00	~9:00
1"/25mm	AFAP	900	4:00	3:42	800	:00	2:02	700	:00	3:53	70	:00	~14:00
1.5"/38mm	AFAP	900	6:00	8:20	800	:00	4:32	700	:00	8:45	70	:00	~28:00
2"/50mm	AFAP	900	8:00	14:42	800	:00	8:20	700	:00	15:22	70	:00	~47:00
2.5"/62mm	AFAP	900	10:00	25:15	800	:00	12:30	700	:00	24:14	70	:00	~70:00
3"/75mm	AFAP	900	12:00	33:20	800	:00	18:30	700	:00	35:00	70	:00	~99:00
4"/100mm	AFAP	900	16:00	58:49	800	:00	32:15	700	:00	63:00	70	:00	~170:00
6"/150mm	AFAP	900	24:00	133:20	800	:00	76:55	700	:00	140:00	70	:00	~375:00
8"/200mm	AFAP	900	32:00	238:05	800	:00	131:34	700	:00	252:00	70	:00	~654:00

*This chart is derived from Corning's method as shown in McLellan and Shand (1984), Glass Engineering Handbook, 3rd Edition, New York, McGraw Hill.

**Your kiln may cool more slowly than this rate, and if so it may display an FTC (Failed To Cool) or FTL (Firing Too Long) error message. These messages do not affect the firing.

HOW TO READ THIS CHART IN 5 STEPS

1. Choose a chart from either side of this form based on your preference for units used to express cooling times: Rates in Degrees Per Hour or Rates in Time to Temperature.
2. Calculate the final post-fired thickness of your slab.
3. Match that thickness with the size options listed in the chart's far left column.
4. Focus on the row to the right of your piece's listed thickness. This is now your focal row; it contains all information necessary to successfully anneal your slab.
5. Notice the chart's top row. The boxes in the top row explain the information in the columns below them. Intersect your focal row with the top row to interpret the chart.

As an example expressed in Bullseye's standard chart style, a 2˝ slab of uniform thickness would follow this annealing cycle:

Rate	Temperature	Hold
AFAP	900°F	8:00
14:42	800°F	:00
8:20	700°F	:00
15:22	70°F	:00

20201208.AF