



# Refiring thick previously fired work: 1"-8" (25mm-203mm)

See 'Firing Tips' for common reasons for deviating from this table

For work 1" (25mm) thick and up, and over 24" (61 cm) in any direction, Uroboros recommends using kilns with top, side and bottom heating.

## Firing Schedules (ramps are for 6" or larger open face firings on shelves)

		Heating					Annealing & Cooling								
		Step 1		Step 2		Step 3*		Step 4		Step 5		Step 6		Step 7	
Target temps >>		300° F 149° C		1000° F 538° C		To Desired Peak Temp (see Peak Temp Table)		950° F 510° C		775° F 413° C		500° F 278° C		75° F 42° C	
Maximum Thickness	Ramp Rate (per hour)	Hold (minutes)	Ramp Rate (per hour)	Hold (minutes)	Ramp Rate (per hour)	Hold (minutes)	Ramp Rate (per hour)	Hold (minutes)	Ramp Rate (per hour)	Hold (minutes)	Ramp Rate (per hour)	Hold (minutes)	Ramp Rate (per hour)	Hold (minutes)	Minimum Total Time (hours)
1"	50° F	40	50° F	100	185° F	Per Peak	AFAP	220	25° F	0	45° F	0	150° F	0	43
25 mm	28° C		28° C		103° C	Temp Table			14° C		25° C		83° C		(1.8 days)
1.5"	37° F	60	37° F	150	150° F	Per Peak	AFAP*	360	12° F	0	24° F	0	75° F	0	68
38 mm	21° C		21° C		83° C	Temp Table		(6 hrs)	6.7° C		13° C		42° C		(2.8 days)
2"	25° F	80	25° F	180	125° F	Per Peak	AFAP	480	7° F	0	14° F	0	42° F	0	105
51 mm	14° C		14° C		69° C	Temp Table		(8 hrs)	3.9° C		7.8° C		23° C		(4.4 days)
3"	18° F	120	18° F	225	100° F	Per Peak	AFAP	720	3° F	0	6° F	0	18° F	0	193
76 mm	10° C		10° C		56° C	Temp Table		(12 hrs)	1.7° C		3.3° C		10° C		(8.1 days)
4"	12° F	160	12° F	270	75° F	Per Peak	AFAP	960	1.5° F	300	3° F	0	9° F	0	350
102 mm	6.7° C		6.7° C		42° C	Temp Table		(16 hrs)	0.8° C	(5 hrs)	1.7° C		5° C		(14.6 days)
5"	9° F	200	9° F	305	68° F	Per Peak	AFAP	1200	1.2° F	375	2.4° F	60	7.2° F	0	444
127 mm	5° C		5° C		38° C	Temp Table		(20 hrs)	0.7° C	(6.3 hrs)	1.3° C	(1 hr)	4° C		(18.5 days)
6"	6° F	240	6° F	340	60° F	Per Peak	AFAP	1440	0.8° F	450	1.5° F	150	4.5° F	0	666
152 mm	3.3° C		3.3° C		33° C	Temp Table		(24 hrs)	0.4° C	(7.5 hrs)	0.8° C	(2.5 hrs)	2.5° C		(27.8 days)
7"	4.5° F	280	4.5° F	375	55° F	Per Peak	AFAP	1680	0.6° F	525	1.2° F	225	3.4° F	0	870
178 mm	2.5° C		2.5° C		31° C	Temp Table		(28 hrs)	0.3° C	(8.8 hrs)	0.7° C	(3.8 hrs)	1.9° C		(36.3 days)
8"	3° F	320	3° F	405	50° F	Per Peak	AFAP	1920	0.4° F	600	0.8° C	300	2.4° F	0	1271
203 mm	2° C		2° C		28° C	Temp Table		(32 hrs)	0.2° C	(10 hrs)	0.4° C	(5 hrs)	1.3° C		(52.9 days)

Uroboros has no direct experience heating previously fired work in these thicknesses. These numbers are estimates only.

\* For drop slumps cut  
\*Step 3 ramp rate in half

\*\*AFAP means  
As Fast as Possible

### Basic Definition of firing steps

Step 1	Start heat up of pre-fired cold glass, shelf, mold, & kiln. Soak to distribute heat evenly
Step 2	Heat pre-fired glass components to softening point Hold to distribute the heat evenly
Step 3	Fire to desired peak temp Hold to desired finish
Step 4	Lower to upper annealing point, dropping quickly to minimize devit Hold to distribute the heat evenly
Step 5	Annealing ramp: cool to below the strain point Hold
Step 6	1st Cooling ramp Hold
Step 7	2nd Cooling ramp Open kiln when kiln interior is at room temperature.

### Peak Temperature Table - Open Face Molds

This guide is intended as a starting point. Variations of 25° F (13.9° C) or more are expected for specific needs & circumstances, such as kiln type, rate of ramp-up, soak length, thickness of work or mold, etc. All other factors being equal, System 96 glass will require a peak temperature about 25° F (13.9° C) below Fusion FX 90 COE (Bullseye compatible) glass.

Activity	Temp F	Temp C	hold time
Bending (uni-directional)	1100°	538°	1-20 mins
Shallow drop	1200°	649°	1-20 mins
Slumping with molds	1225°	663°	1-30 mins
Medium drop (sinks)	1250°	677°	1-20 mins
'Sugar' firing or Tack Fuse	1300°	704°	1-20 mins
Pâte de Verre	1325°	718°	1-30 mins
Fuse to stick	1350°-1375°	732°-745°	10-45 mins
Maximum Temperature if under 1/4" thickness			
Fuse flat with smooth edges	1420°-1450°	771°-788°	15-90 mins
Fill Bas-Relief molds - wavy edges	1450°-1475°	788°-802°	15-90 mins
Fill sharp mold details -irregular edges	1475°-1500°	802°-816°	90-300 mins