



Refiring thick previously fired work or large components: 1"-8" (25mm-203mm)

See 'Open Face Molds: Firing Deviation Factors' for common reasons for deviating from this table

For work this thickness 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)		960° F 516° C		775° F 413° C		600° F 316° C		100° F 38° 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 Temp Table	AFAP	220	25° F	0	45° F	0	150° F	0	43
25 mm	28° C		28° C		103° C				14° C		25° C		83° C		(1.8 days)
1.5"	37° F	60	37° F	150	150° F	Per Peak Temp Table	AFAP*	360	12° F	0	24° F	0	75° F	0	68
38 mm	21° C		21° C		83° C			(6 hrs)	6.7° C		13° C		42° C		(2.8 days)
2"	25° F	80	25° F	180	125° F	Per Peak Temp Table	AFAP	480	7° F	0	14° F	0	42° F	0	105
51 mm	14° C		14° C		69° C			(8 hrs)	3.9° C		7.8° C		23° C		(4.4 days)
3"	18° F	120	18° F	225	100° F	Per Peak Temp Table	AFAP	720	3° F	0	6° F	0	18° F	0	193
76 mm	10° C		10° C		56° C			(12 hrs)	1.7° C		3.3° C		10° C		(8.1 days)
4"	12° F	160	12° F	270	75° F	Per Peak Temp Table	AFAP	960	1.5° F	300	3° F	0	9° F	0	350
102 mm	6.7° C		6.7° C		42° C			(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 Temp Table	AFAP	1200	1.2° F	375	2.4° F	60	7.2° F	0	444
127 mm	5° C		5° C		38° C			(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 Temp Table	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			(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 Temp Table	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			(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 Temp Table	AFAP	1920	0.4° F	600	0.8° C	300	2.4° F	0	1271
203 mm	2° C		2° C		28° C			(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