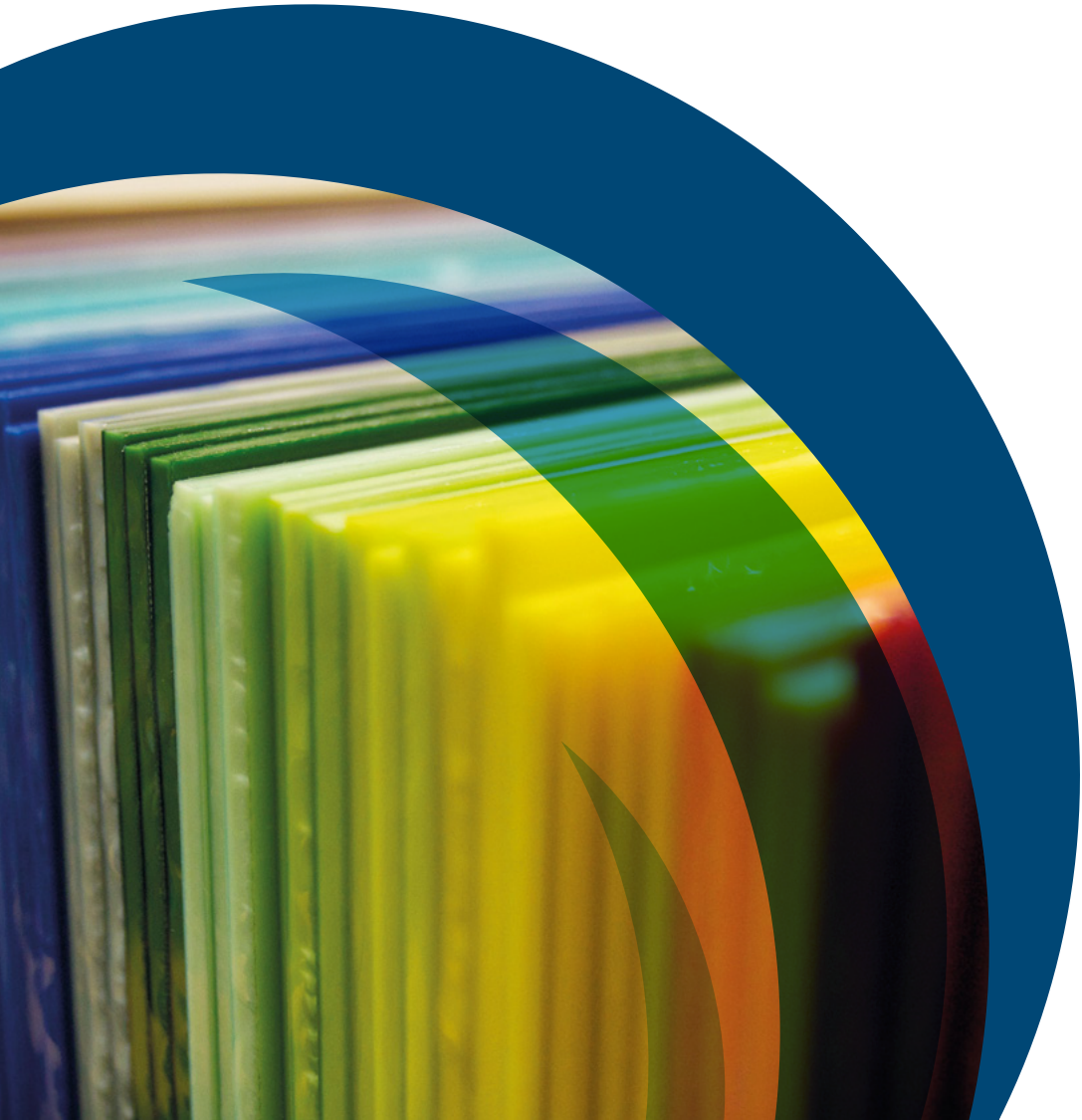
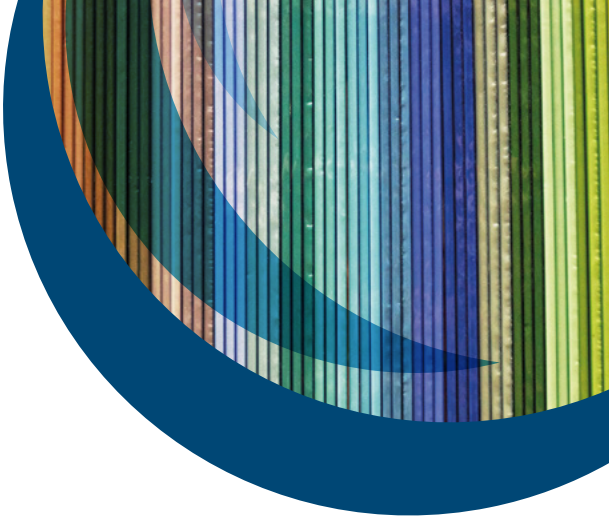
Oceanside 96 & Wissmach 96 firing programs & kiln controller guide

For Kilncare & Olympic kilns





Firing programs

Kiln schedules are made up of segments, each of which has a specific role within the firing program.

Initial heat This is a controlled heating of the glass to the first hold temperature, this helps to squeeze out unwanted bubbles.

Rapid heat process soak This is where the glass starts to melt, the temperature will differ depending on what effect you want; a tack fuse, contour fuse, full fuse or slump. The glass will partially melt with a tack or contour fuse and will therefore require a lower temperature than a full fuse which will melt the glass fully.

Rapid cool anneal soak / Anneal cool Annealing your glass ensures that the piece will be structurally sound and less likely to break, thicker or uneven layers of glass will require a longer annealing time and a slower ramp down.

Cool to room temp This segment brings the temperature down in a controlled way so that the glass is not subject to thermal shock.

The firing programs contained in this booklet are for guidance only, please do a small test piece first and adjust the top temperature as required, as your kiln may under or over fire slightly.

Before using your kiln please make sure you do a pre-fire, this burns out binders, moisture, and other residue left over from the manufacturing process.

Pre-fire

Segment	Rate Celsius/hr	Temp	Hold time (hr:min)
1. Rapid initial heat	AFAP* or 9999°C	to 650°C	0:00
2. END - Let kiln cool down naturally to room temperature.	-	-	-

*AFAP = as fast as possible, some controllers will not allow a rate of 9999°C /hr

Oceanside 96 & Wissmach 96 tack fuse

Separate glass layers are fused together with little deformation beyond softening or rounding of edges

Forming temp 700-760°C

Segment	Rate Celsius/hr	Temp	Hold time (hr:min)
1. Initial heat	150°C/hr	to 677°C	1:00
2. Rapid heat process soak	316°C/hr	to 705°C**	0:10
3. Rapid cool anneal soak	AFAP* or 9999°C/hr	to 510°C	2:00
4. Anneal cool	66°C/hr	to 427°C	0:05
5. Cool to room temp	AFAP* OR 9999°C/hr	to 40°C	0:00
6. END	-	-	-

Oceanside 96 & Wissmach 96 contour fuse

Edges are soft and rounded, project surface retains a degree of definition desired by the artist

Forming temp 760-780°C

Segment	Rate Celsius/hr	Temp	Hold time (hr:min)
1. Initial heat	150°C/hr	to 677°C	0:45
2. Rapid heat process soak	AFAP* or 9999°C/hr	to 760°C**	0:12
3. Rapid cool anneal soak	AFAP* or 9999°C/hr	to 510°C	2:00
4. Anneal cool	66°C/hr	to 427°C	0:05
5. Cool to room temp	AFAP* OR 9999°C/hr	to 40°C	0:00
6. END	-	-	-

*AFAP = as fast as possible, some controllers will not allow a rate of 9999°C /hr
** Will vary depending on desired result and kiln

Oceanside 96 & Wissmach 96 full fuse

Separate glass layers are completely cojoined into a single uniform layer

Forming temp 780-800°C

Segment	Rate Celsius/hr	Temp	Hold time (hr:min)
1. Initial heat	200°C/hr	to 677°C	0:45
2. Rapid heat process soak	AFAP* or 9999°C/hr	to 796°C**	0:12
3. Rapid cool anneal soak	AFAP* or 9999°C/hr	to 510°C	1:30
4. Anneal cool	100°C/hr	to 427°C	0:10
5. Cool to room temp	AFAP* OR 9999°C/hr	to 40°C	0:00
6. END	-	-	-

*AFAP = as fast as possible, some controllers will not allow a rate of 9999°C /hr
** Will vary depending on desired result and kiln

- Some languages for controllers will vary. You may need to adjust the program language to suit the controller.
- Reducing the initial heating rate of the glass once it begins to become molten, allows the air to escape from between the layers of glass and prevents unwanted bubbles.
- The rapid heat and rapid cool segments are fast so that the time spent in the temperature range where devitrification can occur is minimal i.e. crystals have less time to form.
- For larger and thicker pieces of work extend the hold time at the anneal soak and reduce the ramp rate in anneal cool.

Oceanside 96 & Wissmach 96 slump

Segment	Rate Celsius/hr	Temp	Hold time (hr:min)
1. Initial heat	66°C/hr	to 148°C	0:15
2. Slow heat process soak	148°C/hr	to 593°C	0:20
3. Top heat	66°C/hr	to 657°C**	0:25
4. Anneal cool	204°C/hr	to 510°C	1:00
5. Slow cool anneal cool	66°C/hr	to 427°C	0:10
6. Cool to room temp	AFAP* OR 9999°C/hr	to 40°C	0:00
7. END	-	-	-

*AFAP = as fast as possible, some controllers will not allow a rate of 9999°C /hr
** This is a very conservative slumping program that works for single layer up to three layer thick pieces - top temperature may require adjustment depending on thickness

- Secondary firings require a slower initial heating rate than first firings because the glass is one thick piece rather than individual layers (therefore the heat takes longer to penetrate).
- The rapid heat segment has been removed from the program so that when the glass slumps, a uniform cross section is formed, which wouldn't occur with a faster, hotter cycle. The anneal cool has been slowed since the bowl may have a functional purpose which requires it to withstand greater stresses than a decorative object.

Reusche paints - tracing and matting

Segment	Rate Celsius/hr	Temp	Hold time (hr:min)
1. Rapid initial heat	AFAP* or 9999°C	to 680°C	0:05
2. END - Let kiln cool down naturally to room temperature.	-	-	-

*AFAP = as fast as possible, some controllers will not allow a rate of 9999°C /hr

Silver stain

Segment	Rate Celsius/hr	Temp	Hold time (hr:min)
1. Rapid initial heat	AFAP* or 9999°C	to 575°C	0:05
2. END - Let kiln cool down naturally to room temperature.	-	-	-

*AFAP = as fast as possible, some controllers will not allow a rate of 9999°C /hr

- Paints can be fired anywhere between 650°C and 680°C. The higher temperature will achieve a more glossy effect.

Note:
This data is a guide only, firing programs may need to be adjusted according to size and thickness of glass and the kiln's performance. Ensure that data is entered into the controller accurately, otherwise glass may not fuse correctly or paint will not fire onto the glass as desired. Creative Glass Guild sells all glass, tools and materials on the basis that customers have the knowledge and ability to use them safely and in accordance with all relevant regulations and legislation.

Kiln paper

Lining your kiln with paper is essential to prevent your glass projects from sticking to the kiln shelf.

We only sell Papyros paper as it is an extra sturdy ceramic paper specially formulated for glass fusing up to temperatures of 871°C. It's fast and easy to clean up and can also be used for multiple firings making it great value.
Papyros tends to retain its paper-like qualities during firings, rather than decomposing into loose dust. The degree to which Papyros retains its integrity can be affected by the characteristics of the glass being used as well as firing schedules.

Primers

When using moulds it is essential that you use a good primer, this protects your glass work and [illegible] fire again and again!

We sell four different types of primers, all of which we have used in our studios and are happy to recommend.

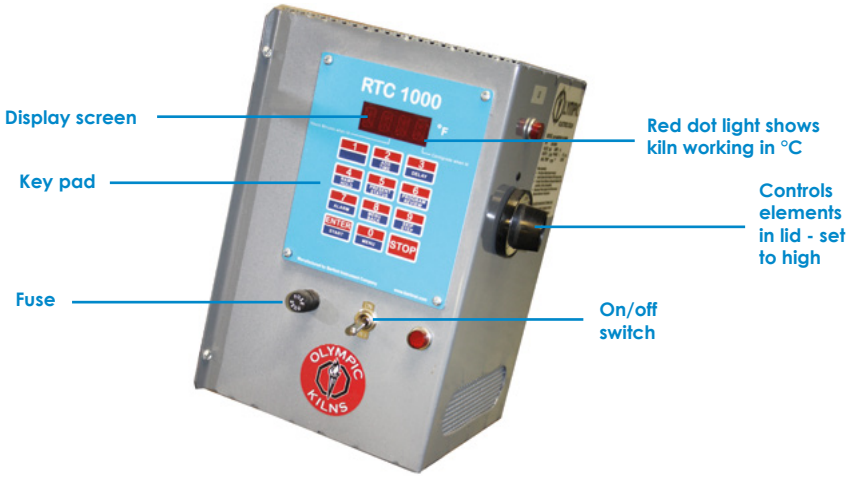
Primo Primer - Great for kilns shelves and slumping moulds.

Tygris - A budget Boron Nitride spray, great for stainless steel moulds, can fire up to 675°C.

ZYP - Recommended by Creative Paradise this easy to apply spray can fire up to 982°C, perfect for casting moulds. Also available as a brushable version.

Kiln controllers

RTC1000 - Olympic Kilns - Hot Box, Fuser 14 & Fuser 18



The RTC1000 is a simple and easy controller to use and will store up to six different kiln programs at once.

Before you begin to program your kiln make sure that you are familiar with the kiln programs and the three sections that make up a program - ramp rate, temperature and hold time.

To enter a program do the following steps;

- From its idle state press enter and then no. 4 - this will take you to the user settings, whilst this is flashing USER select which program you want
- Select PROGRAM 1 and press enter, this will now flash SEGS so you will need to enter how many segments you want in your firing program, select your number and press enter
- RA1 will now flash on the screen - this is your initial ramp rate input the temperature using the number pad e.g. press 1,5,0 for 150°C, and press enter
- TEMP will flash on the screen - input your temperature using the number pad and press enter
- HOLD will flash on the screen - input hold time using the number pad e.g. for 1 hour 30 mins press 1, 3, 0, and press enter
- RA2 will now flash on the screen - repeat the above steps to enter your ramp rate, temperature and hold time for each segment
- If you need to enter as fast as possible enter 9999 into your ramp rate section - in program review this will show as 5555 (or SSSS meaning skip)
- Once all your segments are entered ALRM will flash on screen, press enter and this will take the kiln back to its idle state, if you want to use this program press enter twice and the kiln will start to fire
- To recall a program simply press enter, 0, enter and the number of the program you wish to recall, then press enter 3 times and the kiln will start to fire

The numbered buttons also allow you to tweak programs whilst they are running or add delays and alarms.

- No. 2 allows you to add time whilst you are in the hold segment - this will add 5 minutes
- No. 3 allows you to add a delay to the beginning of a program
- No. 4 is how you access the user settings
- No. 5 allows you to alter a program whilst its in operation - please make sure you read the manual provided before using this feature
- No. 6 allows you to review and cycle through the current program
- No. 7 allows you to set an alarm at a certain temperature for example if you are doing combing or a pot melt and need to check your work at a certain temperature
- No. 8 works in correlation with 0 when you are toggling through the menu settings
- No. 9 allows you to skip a segment whilst you are in the firing program

Kiln controllers

KCR32C & KCR32CWIFi* - KilnCare Hobbyfuser (Gen4), Pro-fuser, Pro-fuser D, Euro-fuser, Cub-fuser, Cub-fuser D,FK range & FK-R range

* The KCR32CWIFi is internally the same as the KCR32C but has the capability to be accessed and controlled remotely from your mobile device. Using Kilncares GATEway access site you can view how your kiln is running in real time. Stop the firing or adjust programs all without even being in the same country let alone the same room. The KCR32WIFI is also fitted with a USB port that allows programs to be entered that way direct from PC if required and also allows us to apply updates and run diagnostics without travelling to your kiln.

The KCR32C & KCR32CWIFi is a simple and easy controller to use and will store up to 32 different kiln programs at once.

Before you begin to program your kiln make sure that you are familiar with the kiln programs and the three sections that make up a program - ramp rate, temperature and hold time.

To enter a program do the following steps;

- Press the step button and PR1 will show on the screen
- Press the step button again and this will take you to the ramp rate (a red light with arrows next to it lights up) - to change the numbers you simply press the up and down arrows and when you get to your chosen temperature press the step button
- This then takes you to the temperature section (a red light with a temp gauge next to it lights up) again press the up and down arrows to reach your chosen temperature then press the step button
- The next section is the hold time (a red light with a clock next to it lights up), again press the up and down buttons to get to your chosen timings, then press the step button
- Work your way through the program entering each ramp rate, temperature and hold time
- To enter the highest temperature possible just keep the up button pressed until FULL appears on the screen
- Once you have entered all your program segments hold the down button till END appears on the screen
- Press stop/start to start firing, 0000 will appear offering you a chance to delay firing, this will flash for 5 seconds before the program starts
- To recall a program press the stop/start button then use the up/down buttons to select the number program you require (at this point you may want to check the program by scrolling through using the step button) then press stop/start to begin firing

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