

Dry Out/Heat Up Schedule **BETAGUN**

SEGMENT	RATE	DURATION
AMBIENT CURE	50°F to 80°F	24 hours
AMBIENT to 350°F	25°F per hour	12 hours
350°F HOLD	Hold at 350°F	10 hours
350°F to 850°F	25°F per hour	20 hours
850°F HOLD	Hold at 850°F	10 hours
850°F to 1150°F	25°F – 50°F per hour	6 – 12 hours
1150°F HOLD*	Hold at 1150°F	10 hours
1150° to 1500°F	50°F – 75°F per hour	5 – 7 hours
1500°F HOLD	Hold at 1500°F	10 hours
*Aluminum may be added at this point and the schedule continued		
Ramp rates should be controlled by the highest reading thermocouple Hold periods should be controlled by the lowest reading thermocouple		
Cool to ambient (if needed) at 100°F per hour		
<i>This schedule is best controlled by the thermocouple placement described on the next page.</i>		

Typical Construction: This schedule is designed for Betagun installations in a typical aluminum furnace, which may include, but is not limited to thicknesses up to 15". Please contact your Pryor Giggey sales representative for furnace constructions with additional materials.

Aluminum Contact Refractory Warning: We recommend the addition of aluminum metal upon completion of the 1150°F hold segment of this schedule. This will help protect the aluminum contact refractories (Betagun) and those molten metal resistant additives from overheating beyond what they would normally see in service and maintain their ultimate effectiveness.



The success of the Dry Out/Heat Up procedure can be improved by creating ambient cure conditions that are above 50°F. This will ensure the development of the most favorable cement phases. The formation of these desirable cement phases will improve the integrity of the cast in place material as well as facilitate their most efficient dehydration. Also, increasing and maintaining the movement of warm air in the furnace during the installation and curing process will help with the evaporation of mechanical water prior to the dry out.

The temperatures shown in the schedule and the rates of increase are based on refractory hot face temperatures as read from properly placed heat sensing devices. These devices should be positioned one inch below the refractory hot face and located throughout the unit. If the thermocouples cannot be buried in the refractory they should be positioned in the air one inch above the refractory surface. The ramp rates in the schedule should be followed based on the sensing device that indicates the highest temperature reading and the hold periods in the schedule should be followed based on the sensing device that indicates the lowest temperature reading. It is very important to maintain a positive furnace pressure with adequate air movement throughout the unit during this schedule to reduce the possibility of cold spots. If the thermocouple readings in the unit vary by more than 50°F from each other, it may be an indication of inadequate air circulation or negative pressure in the unit and must be corrected.

We strongly recommend the assistance of a professional third party contractor for best results in controlling the heat up procedure. Third party contractors who specialize in curing refractory lined units are better equipped to control the ramp and hold periods in this schedule than the refractory end user.

Important note: If pressurized steaming is observed during any part of this schedule, discontinue heat up. Hold the current temperature until the steaming subsides, then resume schedule as indicated.

We understand that the ultimate temperatures attained in each area of the unit may be limited to system capability. If the maximum temperature shown in any part of this schedule cannot be reached then you must attempt to achieve the highest temperature for at least five hours and then either begin using the unit or start a cooling schedule back to ambient as indicated. *If any part of the repair is directly opposite a burner, some precaution should be taken to protect the new refractory from flame impingement.* Ceramic fiber can be used to offer adequate protection in this circumstance.

We recommend the use of weep holes when the refractory is installed over a metal surface or other non-porous material.

We further recognize that many outside influences can disrupt the best laid plans for a controlled heat up process. While our schedules are forgiving in many respects, it is not possible to allow for every conceivable variable that may occur that may preclude an ideal heat up schedule progression. Those disruptive outside influences are out of our control and are considered to be the sole responsibility of the heat up contractor and/or the end user.

Pryor Giggey Co. makes no warranty either expressed or implied, nor accepts any further liability for the material, labor for installation, or loss of production related to the heat up process. The heat up schedule shown here is offered at the request of the customer and should be regarded as a suggested recommendation for controlling the heat up process and nothing more.

Please do not hesitate to contact your Pryor Giggey Co. representative should you have any question concerning this schedule or its use and application.

