

# Firing Schedules

The following table classifies alloys and the appropriate firing schedules.

Speed	Alloy Type	Alloy Description
Slow	Precious type I	Soft Yellow: 80-87% Au
Medium	Precious type II	Hard: 70-80% Au
Medium	Semi-precious type I	AuPdAg (50-30-15) typical
Fast	Semi-precious type II	AuPd (50-40/45) typical
Fast	Semi-precious type III	PdAg (60-30/40) typical
Fast	Semi-precious type IV	PdCuGa (80-10-x) typical
Slow	Non-precious	Ni (> 80%)
Medium	Non-precious	Ni-Cr (70-80% Ni)
Fast	Non-precious	Ni-Cr (60-70% Ni)
Slow	Non-precious	Cr no Ni alloys

## Fast Firing Rate for low thermal expansion alloys

Procedure/Step	Entry/Dry Time	Rate in %/min	Air/Vacuum	Low Temp Set Point	High Temp Set Point	Hold Time	Cool Time
1st opaque	2 min.	55°C/100°F	Vacuum	650°C/1200°F	990°C/1815°F	None	Rapid
2nd opaque	3 min.	55°C/100°F	Vacuum	650°C/1200°F	980°C/1795°F	None	Rapid
1st margin	5 min.	70°C/125°F	Vacuum	650°C/1200°F	980°C/1795°F	None	Rapid
2nd margin	3 min.	70°C/125°F	Vacuum	650°C/1200°F	970°C/1780°F	None	Rapid
1st body	8 min.	70°C/125°F	Vacuum	650°C/1200°F	930°C/1705°F	None	Rapid
2nd body	5 min.	70°C/125°F	Vacuum	650°C/1200°F	920°C/1690°F	None	Rapid
Glaze (natural)	2 min.	70°C/125°F	Air	650°C/1200°F	920°C/1690°F	None	Rapid

## Medium Firing Rate for medium thermal expansion alloys

Procedure/Step	Entry/Dry Time	Rate in %/min	Air/Vacuum	Low Temp Set Point	High Temp Set Point	Hold Time	Cool Time
1st opaque	2 min.	55°C/100°F	Vacuum	650°C/1200°F	990°C/1815°F	None	Rapid
2nd opaque	3 min.	55°C/100°F	Vacuum	650°C/1200°F	980°C/1795°F	None	Rapid
1st margin	5 min.	55°C/100°F	Vacuum	650°C/1200°F	980°C/1795°F	None	1-2 min.
2nd margin	3 min.	55°C/100°F	Vacuum	650°C/1200°F	970°C/1780°F	None	1-2 min.
1st body	8 min.	55°C/100°F	Vacuum	650°C/1200°F	920°C/1690°F	None	1-2 min.
2nd body	5 min.	55°C/100°F	Vacuum	650°C/1200°F	910°C/1670°F	None	1-2 min.
Glaze (natural)	2 min.	55°C/100°F	Air	650°C/1200°F	910°C/1670°F	None	1-2 min.

## Slow Firing Rate for high thermal expansion alloys

Procedure/Step	Entry/Dry Time	Rate in %/min	Air/Vacuum	Low Temp Set Point	High Temp Set Point	Hold Time	Cool Time
1st opaque	2 min.	55°C/100°F	Vacuum	650°C/1200°F	990°C/1815°F	None	Rapid
2nd opaque	3 min.	55°C/100°F	Vacuum	650°C/1200°F	980°C/1795°F	None	Rapid
1st margin	5 min.	35°C/65°F	Vacuum	650°C/1200°F	980°C/1795°F	None	3-5 min.
2nd margin	3 min.	35°C/65°F	Vacuum	650°C/1200°F	970°C/1780°F	None	3-5 min.
1st body	8 min.	35°C/65°F	Vacuum	650°C/1200°F	910°C/1670°F	None	3-5 min.
2nd body	5 min.	35°C/65°F	Vacuum	650°C/1200°F	900°C/1650°F	None	3-5 min.
Glaze (natural)	2 min.	35°C/65°F	Air	650°C/1200°F	900°C/1650°F	None	3-5 min.

### Notes

1. No hold time for any firing step.
2. High Temp Set Point listed is +/- 10°C +/- 18°F.
3. Suggested High Temp is beginning point. Best high temp depends on factors such as muffle, load, elevation, etc. Analyze the results from the individual furnace for optimum temperature.
4. High temp add 10°C for intermediate size cases and 20°C for large cases.
5. Semi-precious alloys: to heal cracks fire very fast (100°C/min 180°F/min) with same high temp as listed.
6. Glaze temperature will determine the appearance (sheen) obtained. Use higher temperature, not longer hold time, to achieve higher sheen.
7. Prepolished units should use a lower glaze temperature.
8. For optimal results air fire from 650°C to 680°C; apply vacuum at 680°C. Make certain that full vacuum is reached by 715°C.