

Recommendation of “Pressing at low pressure” during CZR Pressing

The press furnace pressure for the pressable technique is usually set at 4bar (0.4MPa) to 5 bar (0.5MPa). However, in the case of pressing of CZR PRESS ingots, this pressure is too high and often cause the following problems.

- 1) Cracks of the zirconia frameworks after pressing
- 2) Breaking of the investment ring after pressing

In order to avoid the above problems, we would like to recommend lowering the pressing pressure during CZR PRESS pressing. This is strongly recommended in addition to the notes for the zirconia framework thickness and shape.

Please adjust the pressing schedule referring to the following table. As a general rule, longer pressing time is required during the pressing at low pressure. Adjust the pressure regulator to the pressure specified below.

Press Parameters for the Pro-Press 100 (Whip Mix Intra Tech)

Table 11 Pressing in a Small ring 1Ingot Ring Size= wt.100g

Entry temp	Vacuum Level	Heat Rate	Final Temp	Hold Time	Press Time (Note)	Cool Time	Pressure
700°C	Full	60°C/m	1045°C	15min	4min	0.2min	2.7bar
1292°F	Full	108°F/m	1913°F	15min	4min	0.2min	2.7bar

Note: In case Special Function Button has been selected, enter “0min” for Re-Press time.

Pressing in a Large ring 1Ingot Ring Size=wt.200g

Entry temp	Vacuum Level	Heat Rate	Final Temp	Hold Time	Press Time (Note)	Cool Time	Pressure
700°C	Full	60°C/m	1065°C	20min	6min	0.2min	2.7bar
1292°F	Full	108°F/m	1949°F	20min	6min	0.2min	2.7bar

Note: In case Special Function Button has been selected, enter “2min” for Re-Press time.

Pressing in a large ring 2Ingots Ring Size=wt.200g

Entry temp	Vacuum Level	Heat Rate	Final Temp	Hold Time	Press Time (Note)	Cool Time	Pressure
700°C	Full	60°C	1065°C	20min	8min	0.2min	2.7bar
1292°F	Full	108°F	1949°F	20min	8min	0.2min	2.7bar

Note: In case Special Function Button has been selected, enter “4min” for Re-Press time.

Press Parameters for the Ceram Press Qex (Dentsply NeyTech)

Table 12 Pressing in a Small ring 1Ingot Ring Size= wt.100g

Start temp	Rate	Vacuum	Press Temp	Hold	Press	Pressure
700°C	60°C/m	On	1045°C	15min	8min	2.7bar
1292°F	108°F/m	On	1913°F	15min	8min	2.7bar

Pressing in a Large ring 1Ingot Ring Size= wt.200g

Start temp	Rate	Vacuum	Press Temp	Hold	Press	Pressure
700°C	60°C/m	On	1065°C	20min	11min	2.7bar
1292°F	108°F/m	On	1949°F	20min	11min	2.7bar

Pressing in a large ring 2Ingots Ring Size=wt.200g

Start temp	Heat Rate	Vacuum	Press Temp	Hold	Press	Pressure
700°C	60°C/m	On	1065°C	20min	14min	2.7bar
1292°F	108°F/m	On	1949°F	20min	14min	2.7bar

Press Parameters for the Auto Press Plus (Pentron Lab)

Table 13 Pressing in a Small ring 1Ingot Ring Size= wt.100g

T1	T2	Rate	H1	H2	Vacuum	Pressure
700°C 1292°F	1045°C 1913°F	60°C/m 108°F/m	15min 15min	6min 6min	Max Vac Max Vac	2.7bar 2.7bar

Pressing in a Large ring 1Ingot Ring Size=wt.200g

T1	T2	Rate	H1	H2	Vacuum	Pressure
700°C 1292°F	1065°C 1949°F	60°C/m 108°F/m	20min 20min	7min 7min	Max Vac Max Vac	2.7bar 2.7bar

Pressing in a Large ring 2Ingots Ring Size=wt.200g

T1	T2	Rate	H1	H2	Vacuum	Pressure
700°C 1292°F	1065°C 1949°F	60°C/m 108°F/m	20min 20min	8min 8min	Max Vac Max Vac	2.7bar 2.7bar

Press Parameters for the Multimat Touch & Press (Dentsply DeTrey)

This is the air pressure type press furnace in which the pressing pressure is designed at low pressure.

There is no change for Table 10, Page 23 of the Instruction Manual.

Press Parameters for the EP500 (Ivoclar)

Table 9 Pressing in a Small ring 1Ingot Ring Size= wt.100g

B	t↑	T	H	V1	V2	Pressure	N
700°C 1292°F	60°C 108°F	1045°C 1913°F	15min 15min	700°C 1292°F	1045°C 1913°F	4.5bar 4.5bar	- -

Pressing in a Large ring 1Ingot / 2Ingots Ring Size=wt.200g

B	t↑	T	H	V1	V2	Pressure	N
700°C 1292°F	60°C 108°F	1065°C 1949°F	20min 20min	700°C 1292°F	1065°C 1949°F	4.5bar 4.5bar	- -

In case of EP500, set the pressure at 4.5 bar because the pressure 2.7bar is low.

Press Parameters for the EP600 (Ivoclar)

Table 9 Pressing in a Small ring 1Ingot Ring Size= wt.100g

B	t↑	T	H	E
700°C 1292°F	60°C 108°F	1045°C 1913°F	15min 15min	300µm/min 300µm/min

Pressing in a Large ring 1Ingot / 2Ingots Ring Size=wt.200g

B	t↑	T	H	E
700°C 1292°F	60°C 108°F	1065°C 1949°F	20min 20min	300µm/min 300µm/min

In case of EP600, set the stopping speed at 300µm /min and adjust the press cycle.

The above pressing times are recommended only as our guide. Please find the best pressing times that suit your furnace depending upon the size and number of the patterns.

REMARKS

For the pressing at low pressure, we have tested many times and decided the pressing schedule. But, please note that the pressing at lower pressure less than the recommended pressure by the press furnace manufacturer may be outside the performance guarantee of the manufacturer.