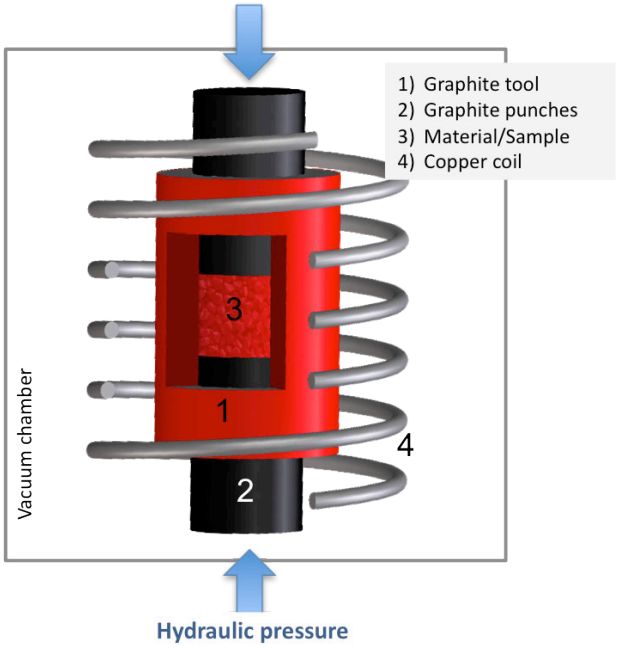
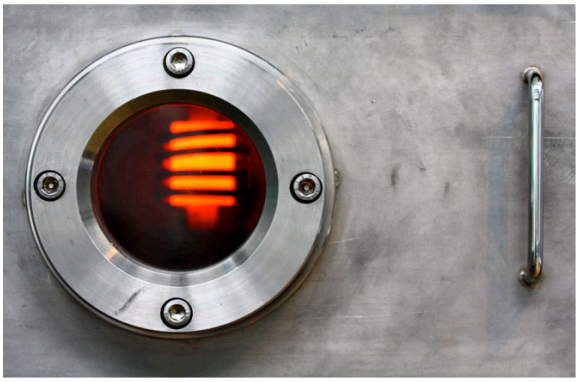
Inductive heated hot pressing



Inductive hot pressing is a consolidation method which can be seen as an alternative approach to direct hot pressing. With this process also high heating rates – compared to direct hot pressing – can be realized.



Besides using this technology for hot pressing, it can also be used for rapid sintering experiments (without applying mechanical pressure) as well as for first screening tests (small samples) if expensive raw materials are used.

Typical process parameters are:

Heating rate:	typ. 100-200 K/min
Cooling rate:	100 K/min
max Temperature:	2000 °C
mech. Pressure:	100 kN
Atmospheres:	Vacuum, Ar, N_2, N_2/H_2
Coil diameter:	Ø 50mm/100mm
Sample diameter:	Ø 10-50 mm
Compacting dist.:	max. 150 mm
Typical cycle:	< 1 hrs

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Typical materials for hot pressing

Metals	Borides	Nitrides	Carbides	Oxides	Composite Materials
W	TiB_2	TiN	TiC	Al_2O_3	Diamond – Metal Composites
Ti	ZrB_2	TaN	SiC	ZrO_2	Ti Metal Matrix Composites
Cu	CrB_2	AlN	WC	Ta_2O_3	Nanomaterial reinforced MMC
Nb			B_4C	Nb_2O_5	Selflubricating MMC
Ru					

Graphite tools in stock (additional geometries possible)

Zylindrical tools, Ø = 10mm Ø = 20mm Ø = 50mm

Typical hot pressing cycle