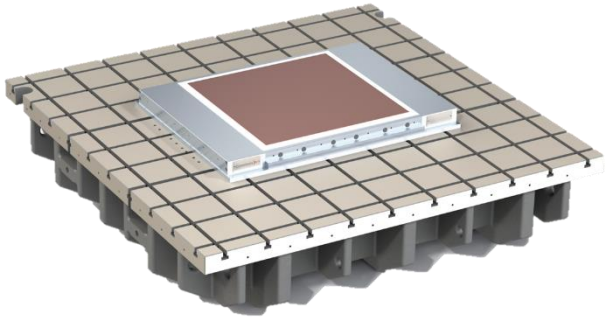
CorePlate BlankXpert

TECHNICAL DATASHEET

Description

A cutting-edge temperature-cycled plate designed for high-performance thermoplastic composite processing with exceptional temperature uniformity and low energy consumption.

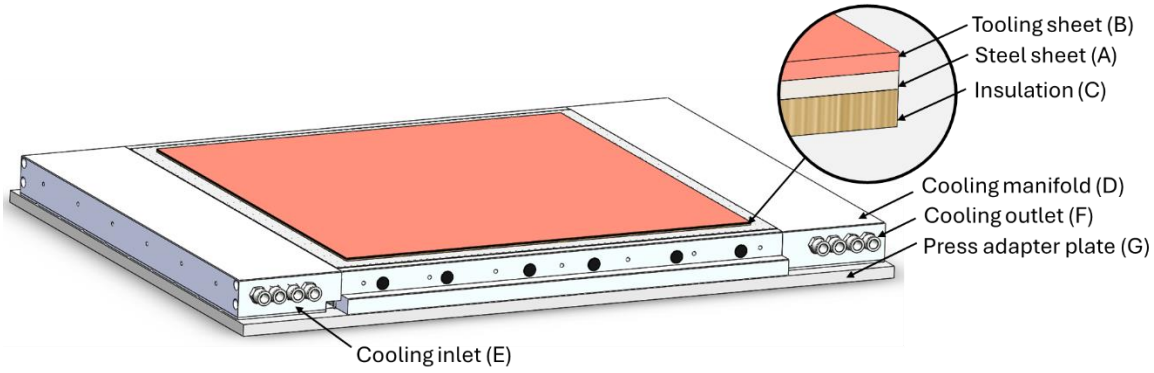
Ideal for aerospace applications, the solution supports the processing of advanced materials such as carbon fiber PEEK, PEKK, and PAEK, enabling efficient production of flat or tailored laminates in single- or double-sided configurations.



Overview

- **Heated Area:** Custom
- **Integration Capability:** integration into a press
- **Configuration:** Supplied in pairs (upper and lower) or single for use with vacuum bag or membrane
- **Temperature Range:** Up to 450 °C
- **Controlled heat rate:** Up to 600 °C/min
- **Controlled cool rate:** Up to 200 °C/min
- **Application:** Composite blanks

Product function



CorePlate BlankXpert is combined with a CorePower system to convert power from the main grid and control the temperature in the plate. The inductor which is embedded in the plate employs Corebon's proprietary induction heating technology to achieve uniform heating of the steel sheet (A). The heat is then conducted through a tooling sheet (B) that will be facing the composite laminate. The inductor is continuously cooled and the insulation layer (C) can be made in different thicknesses to tailor the heat up rate vs energy consumption. During the cooldown phase the plate is support heated to fully control the cool rate and to introduce cooling dwells if requested. The coolant is distributed though a manifold

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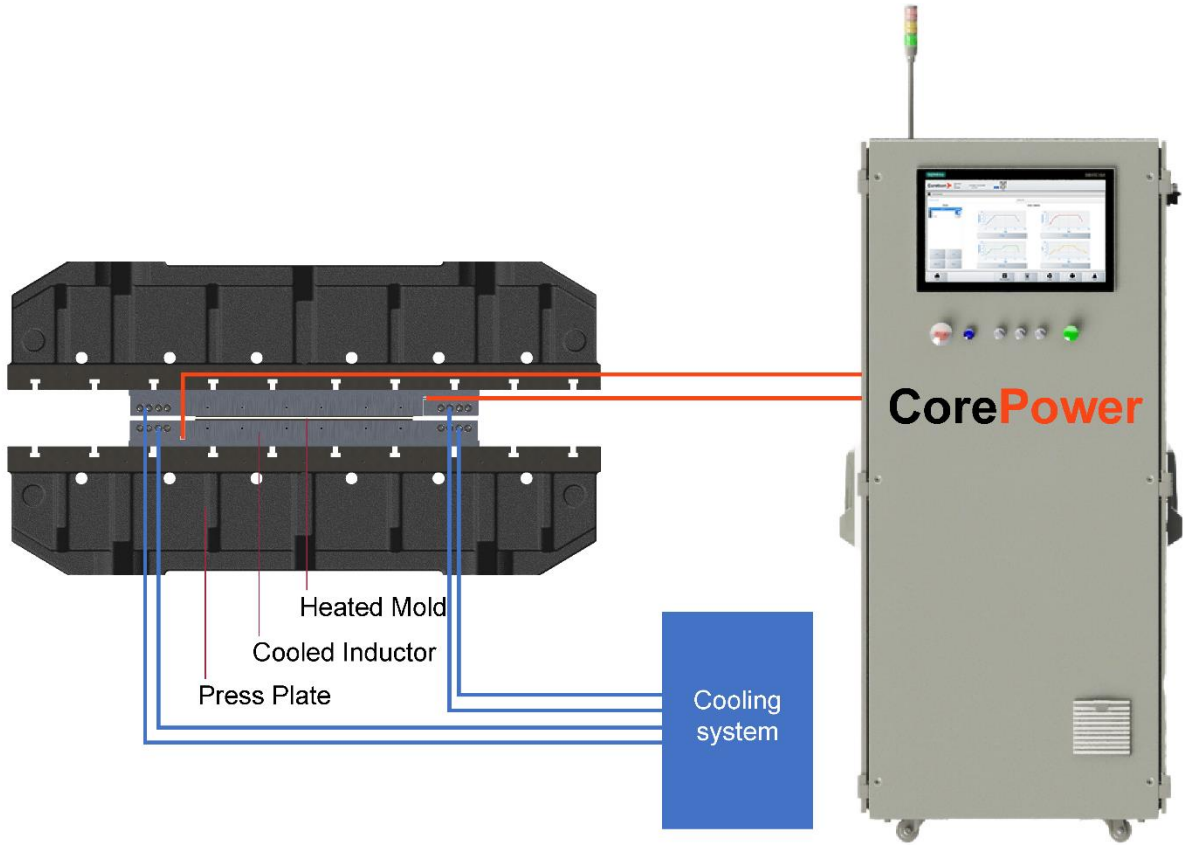
It is also available for download at https://corebon.com/our-solutions/coreplates/

(D) from the inlet (E) to the outlet (G). The adapter plate (G) is used to attach the heated plate to the press.

The figure below shows the typical setup with the CorePlate BlankXpert in a press with a CorePower and cooling system.



The chart below shows an example of CF/PEEK processing.

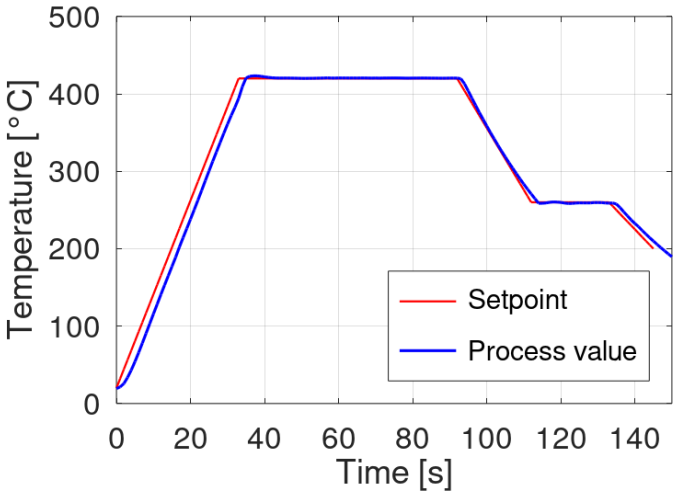
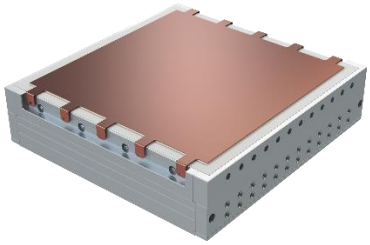


Figure 1: Example of CF/PEEK processing



The CorePlate BlankXpert is available in two variants: one with cooling manifolds on the bottom of the plate and the other with cooling manifolds on the sides (see images above for reference). When the cooling manifold is positioned at the bottom, the heated area can be larger for a given press size, though this reduces the available daylight in the press. Conversely, having the cooling manifolds on the sides provides more daylight but results in a slightly smaller heated area for the same press footprint.

CorePlate BlankXpert Specification and requirements		
Heating power per CorePlate BlankXpert		15, 30, 45, or 60 kW
Size of heated area		Custom
Thickness per plate		~70 or ~117mm[1]
Maximum temperature		450 °C (842 °F)
Heat rate		Up to 600 °C/min
Cooling rate		Up to 200 °C/min[2]
Coolant liquid		Distilled water with 25% glycol
Connection to cooling channels		G 1/2”
Weight (upper and lower)		70 kg for 400x400mm heated area
Tooling sheet materials allowed		Copper
Infrastructure for CorePower system		
Power supply	Frequency	50 – 60 Hz
	Voltage	380 – 480 V
	Phase	3 Ø

[1] Height dimensions are for the side mounted manifolds and bottom mounted manifolds respectively. Height will vary slightly depending on the insulation thickness used.
[2] Cooling rate is highly dependent on the insulation thickness, laminate thickness and the cooling system.