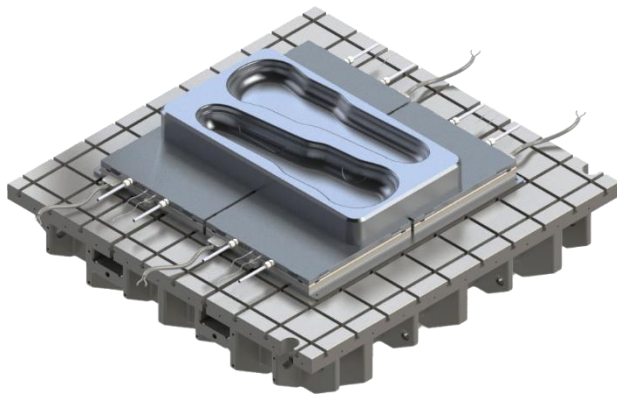
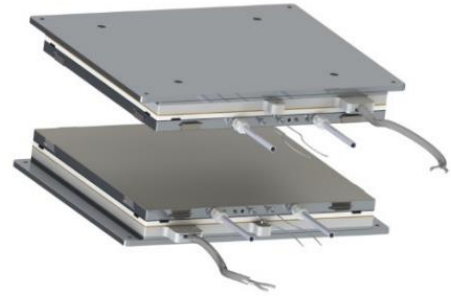


# CorePlate All-In-One

## TECHNICAL DATASHEET

### Description

**All-In-One heated and cooled plate**, specifically engineered to seamlessly integrate into presses for composite manufacturing, spanning from R&D and prototyping to production. This product ensures precise temperature control, reaching up to 275 °C (527 °F). Harness the advantages of induction heating for increased speed and energy savings, all while retaining the flexibility to accommodate diverse mold geometries. Elevate your system capacity by placing **multiple plates side by side** to accommodate larger part geometries.

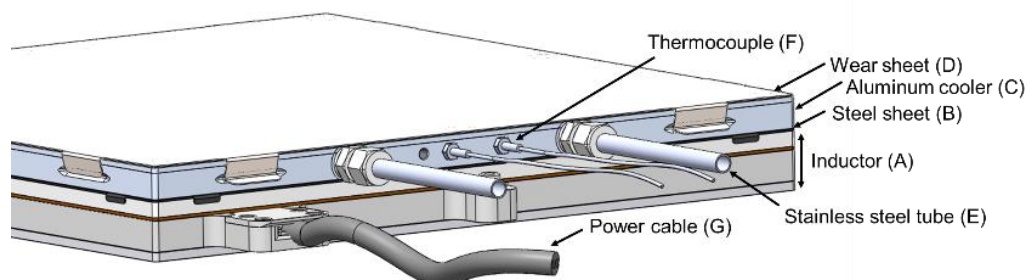


### Overview

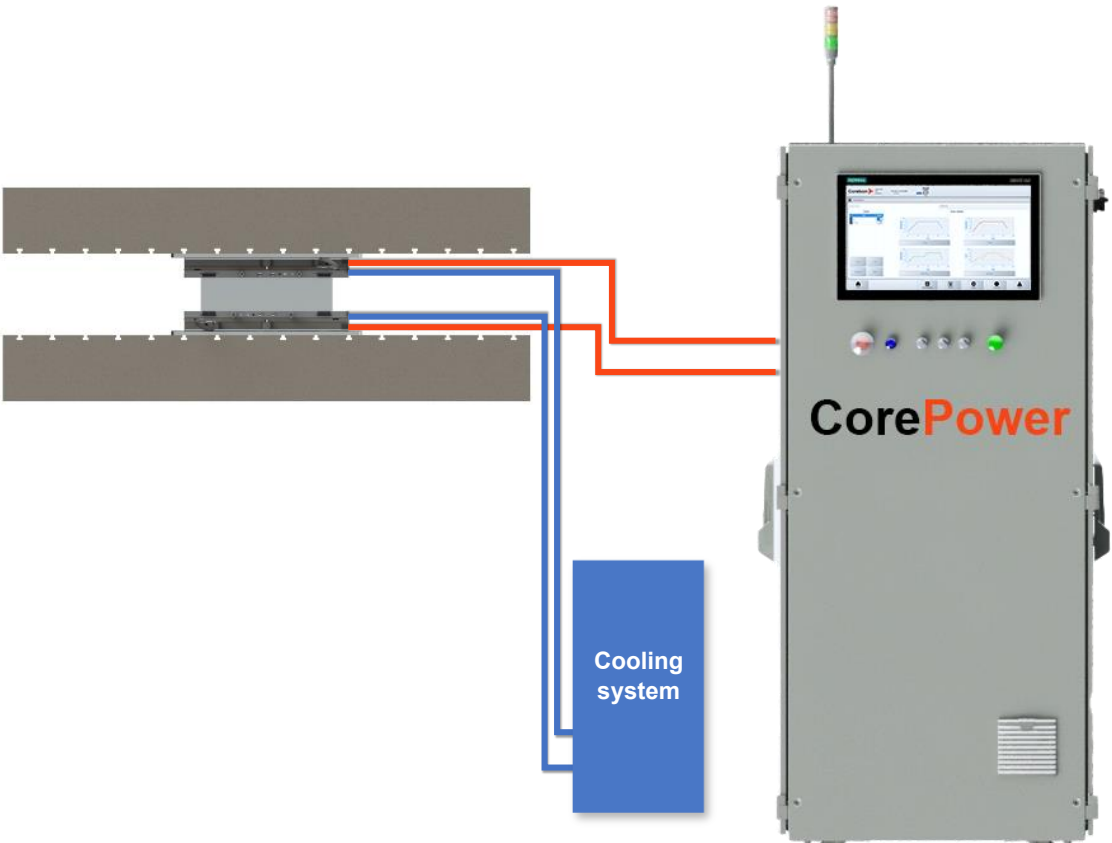
- **Heated Area:** 500 x 500 mm
- **Integration Capability:** integration into a press
- **Configuration:** Supplied in pairs (upper and lower)
- **Temperature Range:** Up to 275 °C
- **Heat Rate:** Up to 35 °C/min
- **Mold Material:** Aluminum
- **Part Materials:** PA6, PA12, PP, SAN, LPET, Epoxy, and many more
- **Molding Processes:** RTM, Compression Molding, Bladder Molding
- **Modular Design:** Multiple plates side by side to accommodate larger part geometries

### Product function

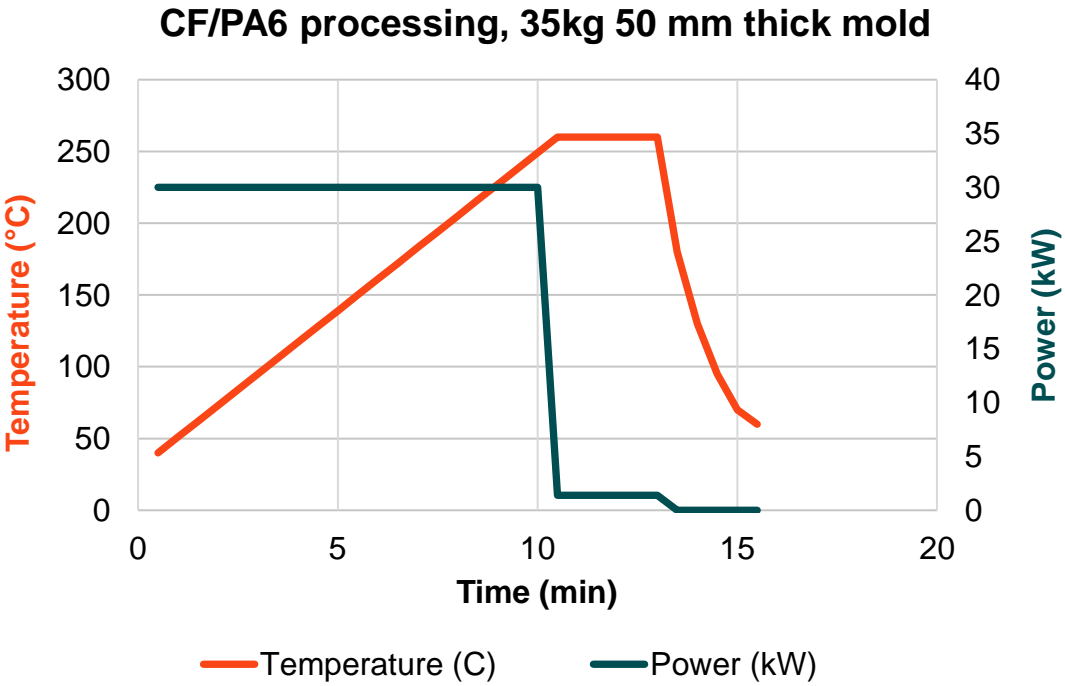
CorePlate All-In-One is combined with a CorePower system to convert power from the main grid and control the temperature in the plate. The inductor (A) employs Corebon's proprietary induction heating technology to achieve uniform heating of the steel sheet (B). The heat is then conducted through the aluminum cooler (C), further enhancing the temperature uniformity. The replaceable wear sheet (D) prolongs the lifetime of the cooler surface. Rapid cooling is achieved by feeding the cooler with a mixture of air and water.



Scan the QR-code to download a digital version of this technical datasheet. It is also available for download at <https://corebon.com/our-solutions/heated-plates/>

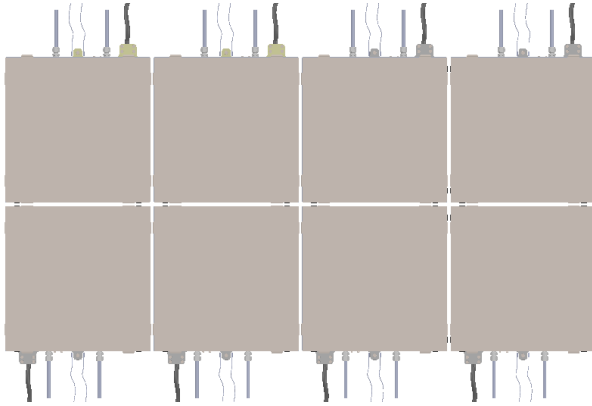


The chart below shows an example of carbon fiber/nylon processing.



## System integration

The plates can be combined and operated together to process bigger composite parts. For press attachment, adapter plates are provided. The CorePlate All-In-Ones are connected to a specifically configured CorePower system for power and temperature control. These systems are provided in two levels: regular (15 kW per set of plates) or rapid (30 kW per set of plates).



Drawings of the hole pattern and other important dimensions for press attachment are shown below. Custom hole patterns and adapter plates can be provided on request.

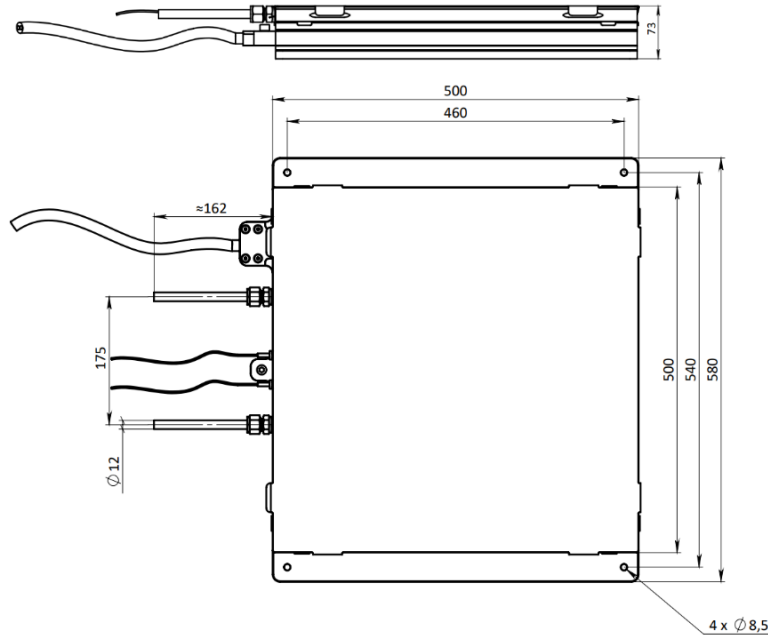


Figure 1: Outer dimensions and hole pattern of a single CorePlate All-In-One.

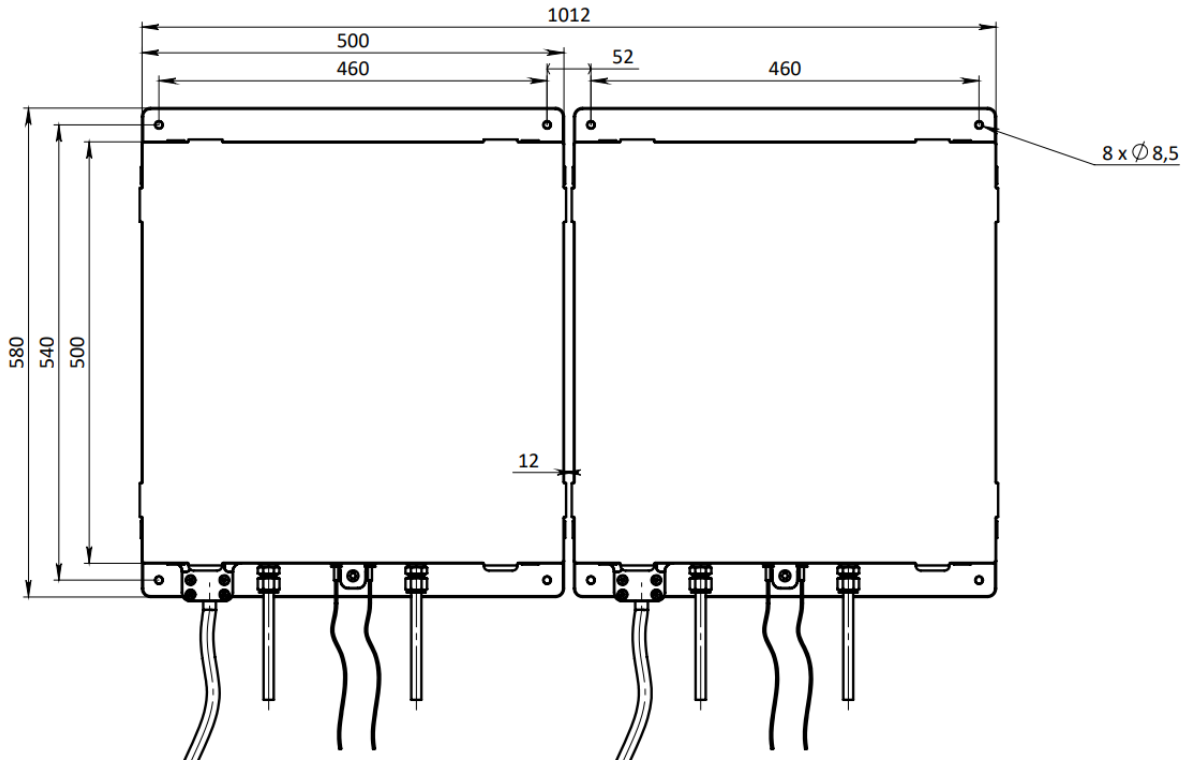


Figure 2: Top view when two CorePlate All-In-Ones are placed side by side with connections going out on the same side.

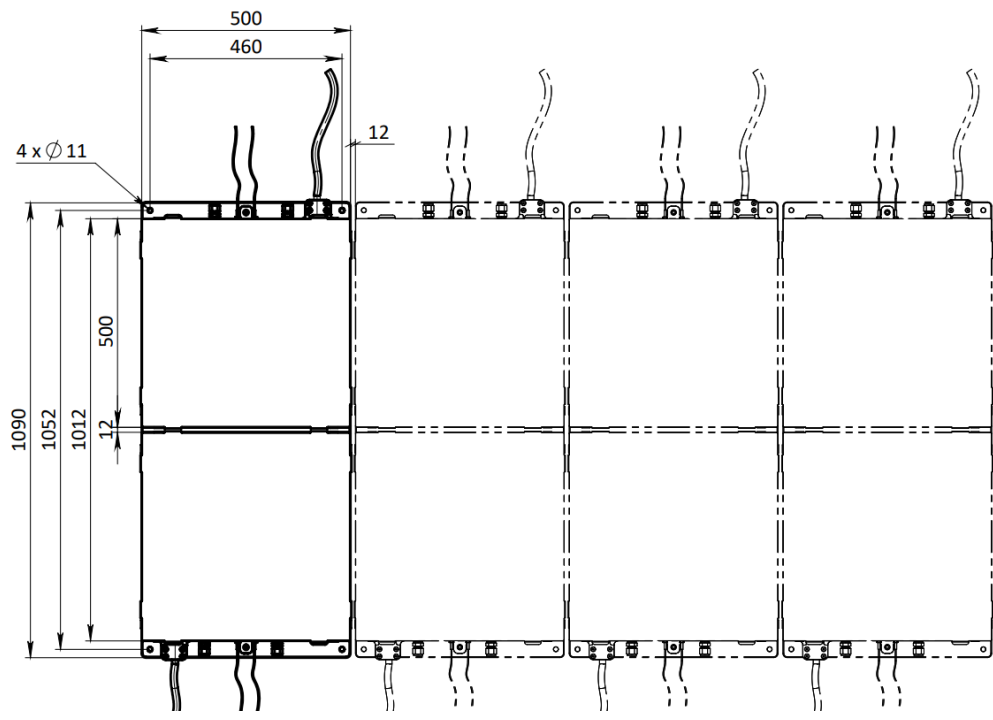
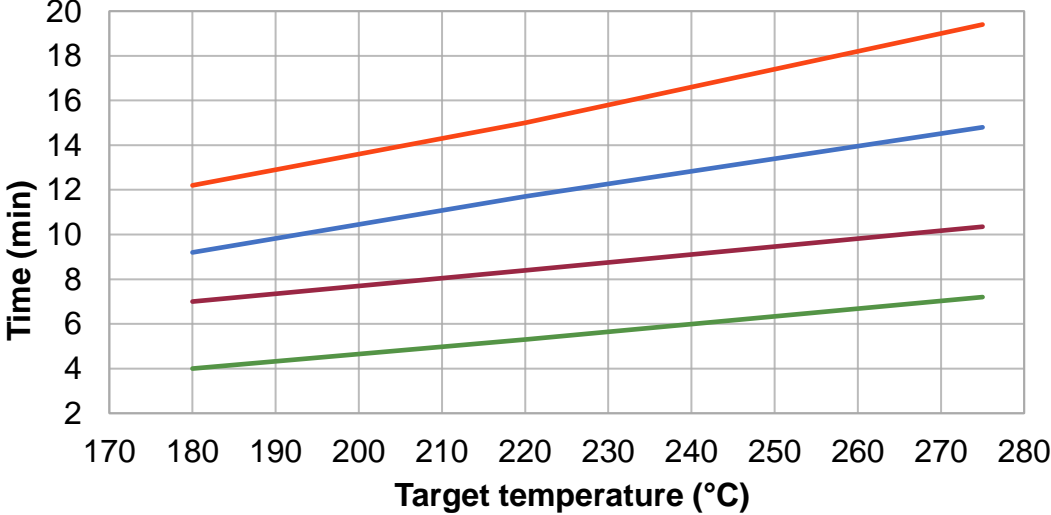


Figure 3: Top view of how it can look like with multiple CorePlate All-In-Ones placed together.

## Heat rates

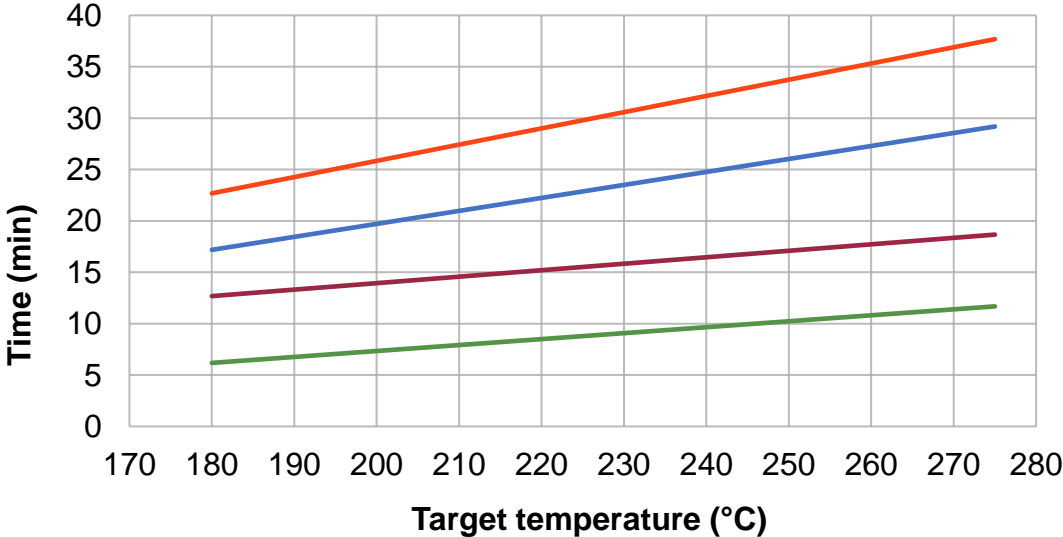
The charts below indicate the time it takes to reach a target temperature within  $\pm 5^\circ\text{C}$  (start temperature  $25^\circ\text{C}$ ) of the mold for different mold sizes and CorePower systems.

**Time to reach  $\pm 5^\circ\text{C}$ , 30 kW heating**



- 35 kg, 50 mm height
- 70 kg, 100 mm height
- 105 kg, 150 mm height
- no mold

**Time to reach  $\pm 5^\circ\text{C}$ , 15 kW heating**



- 35 kg, 50 mm height
- 70 kg, 100 mm height
- 105 kg, 150 mm height
- no mold

<b>CorePlate All-In-One</b>	
<b>Specification and requirements</b>	
Heating power per CorePlate All-In-One	15 kW or 30 kW
Size of heated area	500 x 500 mm
Thickness per plate	73 mm
Maximum pressure	30 bar
Maximum temperature	275 °C
Heat rate	Up to 35 °C/min
Cooling rate	Typically 120 °C/min <sup>1</sup>
Recommended cooling media settings	Liquid/air mix: Liquid requirement 12.5 - 25 l/min. Liquid pressure 5 bar Air pressure 4 bar
Coolant liquid	Distilled water with 25% glycol
Connection to cooling channels, Stainless steel pipe	I.D. 10 mm O.D. 12 mm
Weight (upper and lower)	82 kg
Mold material allowed	Aluminum
Distance between plates placed side by side	12 mm
<b>Infrastructure for CorePower system</b>	
Power supply	Frequency 50 – 60 Hz
	Voltage 380 – 480 V
	Phase 3 Ø

<sup>1</sup> Cooling rate is highly dependent on mold weight and cooling system.