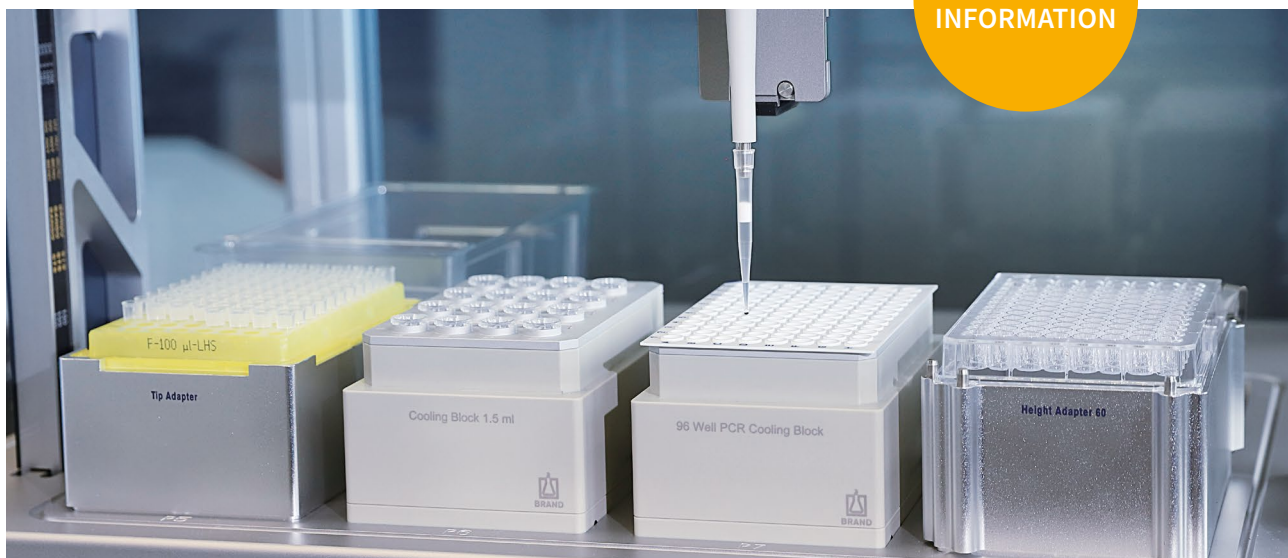



 PRODUCT  
 INFORMATION


## BRAND 96-well PCR Cooling Block

### Comparison of performance in the Liquid Handling Station

#### Overview

Whether in a small or large laboratory, or for manual or automatic pipetting – the cooling of liquids is essential for many biological applications.

This Technical Note uses the 96-well PCR Cooling Block as an example to examine the cooling performance of the new passive cooling system BRAND Cooling Blocks and compares it with that of a competitor's product. The BRAND 96-well PCR cooling block can keep a 20 % glycerol solution (50  $\mu$ l fill volume) below 7 °C for more than 3 hours regardless of its well position. The Cooling Block has a cooling duration more than twice as long as other products and is an effective alternative to active cooling systems.

#### Introduction

The cooling of liquids is essential for numerous biological applications – for example, to protect valuable samples from microbial degradation or to prevent the loss of activity of biologically active molecules. BRAND offers the BRAND Cooling Blocks passive cooling system for 0.5 ml (709510), 1.5 ml (709511), and 5 ml microtubes (709512) as well as Cooling Blocks in 96- and 384-well PCR format (709513 and 709514) for automation.

This Technical Note compares the cooling performance of the BRAND 96-well Cooling Block with that of another passive cooler.



Automatic pipetting  
 made easy with the  
 Liquid Handling Station

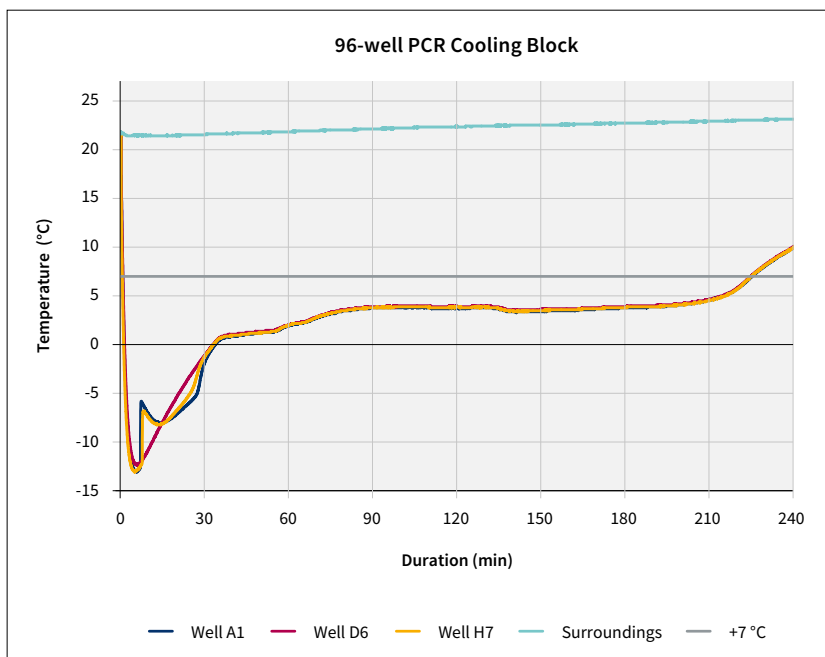
# Material and methods

The passive coolers are frozen upside down in the freezer according to their instructions for use. The BRAND Cooling Block or competitor's product is positioned on the work table of a BRAND Liquid Handling Station. One BRAND 96-well PCR plate (781377) is used for each test. Each well is filled with 50 µl of a 20 % glycerol solution stored at ambient temperature.

Every second, the temperatures within a corner, center, and edge well, in addition to the ambient temperature within the BRAND Liquid Handling Station, are measured and analyzed to determine how long the cooling blocks can keep the temperature in the wells below 7 °C.

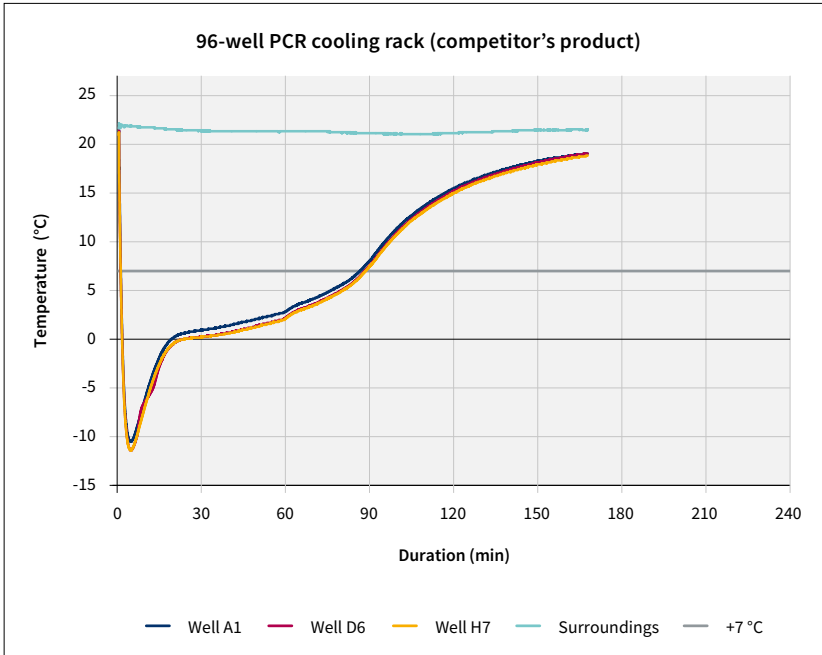
# Results and discussion

Both the BRAND Cooling Block (Figure 1) and the competitor's product (Figure 2) have very uniform cooling curves for the corner, center, and edge wells. In contrast, the BRAND 96-well PCR cooling block in the Liquid Handling Station cools 50 µl of glycerol solution below 7 °C for more than 3.5 hours, while the competitor's product reaches 7 °C after only 90 minutes (Figure 3).



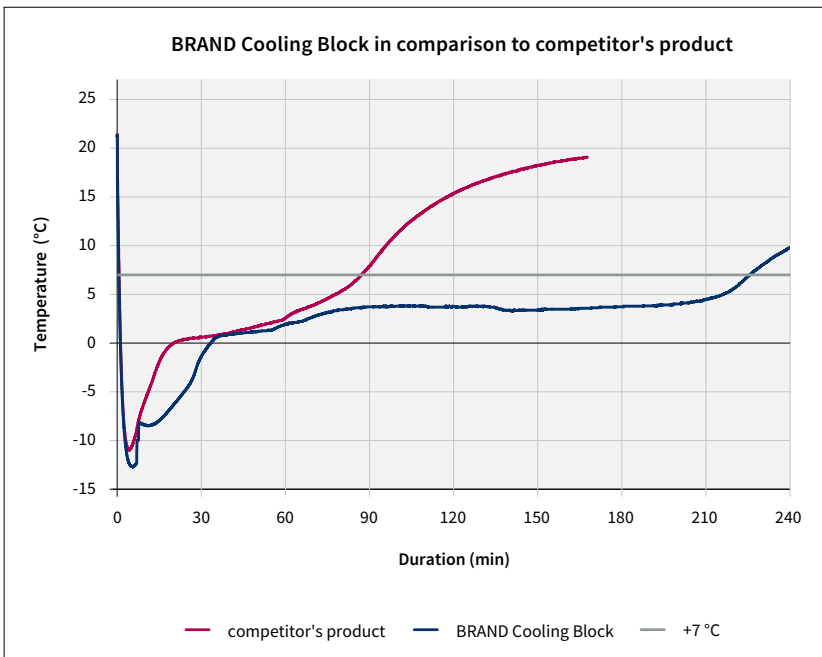
**Figure 1**  
Cooling capacity of a BRAND 96-well PCR Cooling Block.

Shown are the temperature curves in wells A1 (blue), D6 (red), and H7 (yellow) in the BRAND 96-well PCR Cooling Block. All wells are filled with 50 µl of a 20 % glycerol solution. The ambient temperature in the Liquid Handling Station is light blue. The threshold temperature of 7 °C is shown in gray.



**Figure 2**  
Cooling capacity of 96-well PCR cooling rack of a competitor.

Shown are the temperature curves in wells A1 (blue), D6 (red), and H7 (yellow) in the 96-well PCR cooling rack of a competitor. All wells are filled with 50 µl of a 20 % glycerol solution. The ambient temperature in the Liquid Handling Station is light blue. The threshold temperature of 7 °C is shown in gray.



**Figure 3**  
Cooling capacity of the BRAND 96-well PCR Cooling Block compared to a competitor's 96-well PCR cooling rack.

Shown are the averaged temperature curves in the wells of the BRAND 96-well PCR Cooling Block (blue) and in the wells of the competitor's product (red). The threshold temperature of 7 °C is shown in gray.

### Conclusion

The 96-well BRAND Cooling Blocks can maintain a 20 % glycerol solution below 7 °C for more than 3 hours – regardless of its well position.

As such, it has a cooling time that is more than twice as long as the competitor's product tested in this comparison study.



All product information can be found at [shop.brand.de](http://shop.brand.de)

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