

Plate specification, usage guidelines, and FAQs

Overview: This document provides an overview of ReactWise well-plates for high-throughput experimentation. This includes:

- **Technical specification:** A detailed overview of standard dimensions, measurements, and materials. Any custom designs or materials agreed upon may not be detailed here.
- Usage guide: A brief summary of good practice for general use, sealing, and cleaning of the plates.
- FAQs: Answers to common questions about the use and care of the plates, from previous experience using them.

1. Technical specifications

Materials

All plates are available in:

- Quartz; this conforms to the standard JGS2
- Borosilicate

Other materials can be accommodated in discussion with ReactWise. These could include materials such as PEEK, ceramic, or others, depending on the use case.

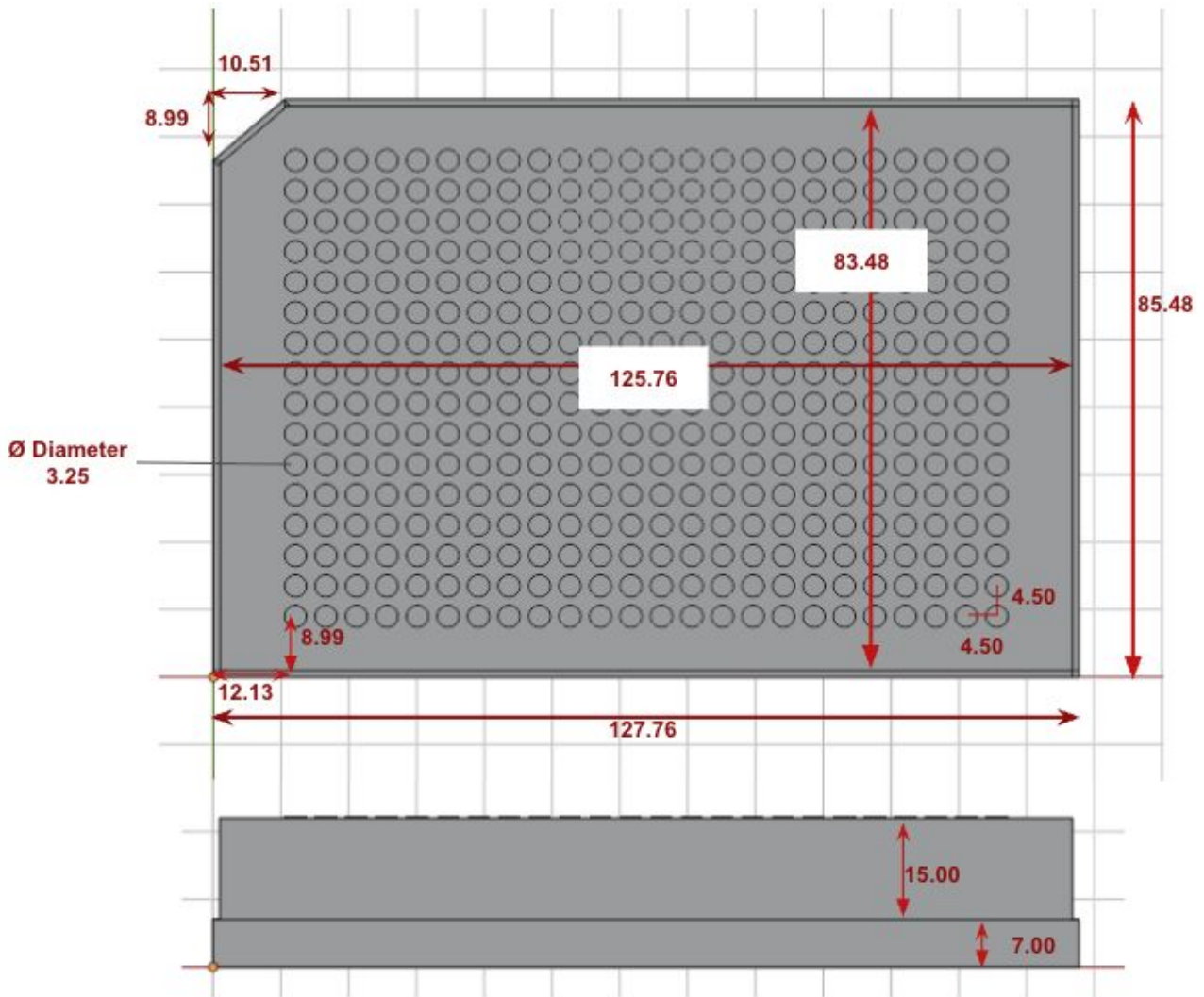
384- well plates

These are available in two different configurations. The variable is the plate height, available in mid-height with deep wells and standard height with shallow wells.

Plate dimensions:	127.76 × 85.48 × 22.00 mm
Well dimensions:	Ø Diameter 3.25, Depth options: 19.00mm OR 12.00mm
Well volumes:	157.62 µL total volume OR 99.55 µL total volume

One corner of the block is removed to create a chamfer for easier handling.

A stepped edge is available on request to improve usability. This is shown in the diagram. The plate is available without a stepped edge; its dimensions are the full dimensions listed in the text.

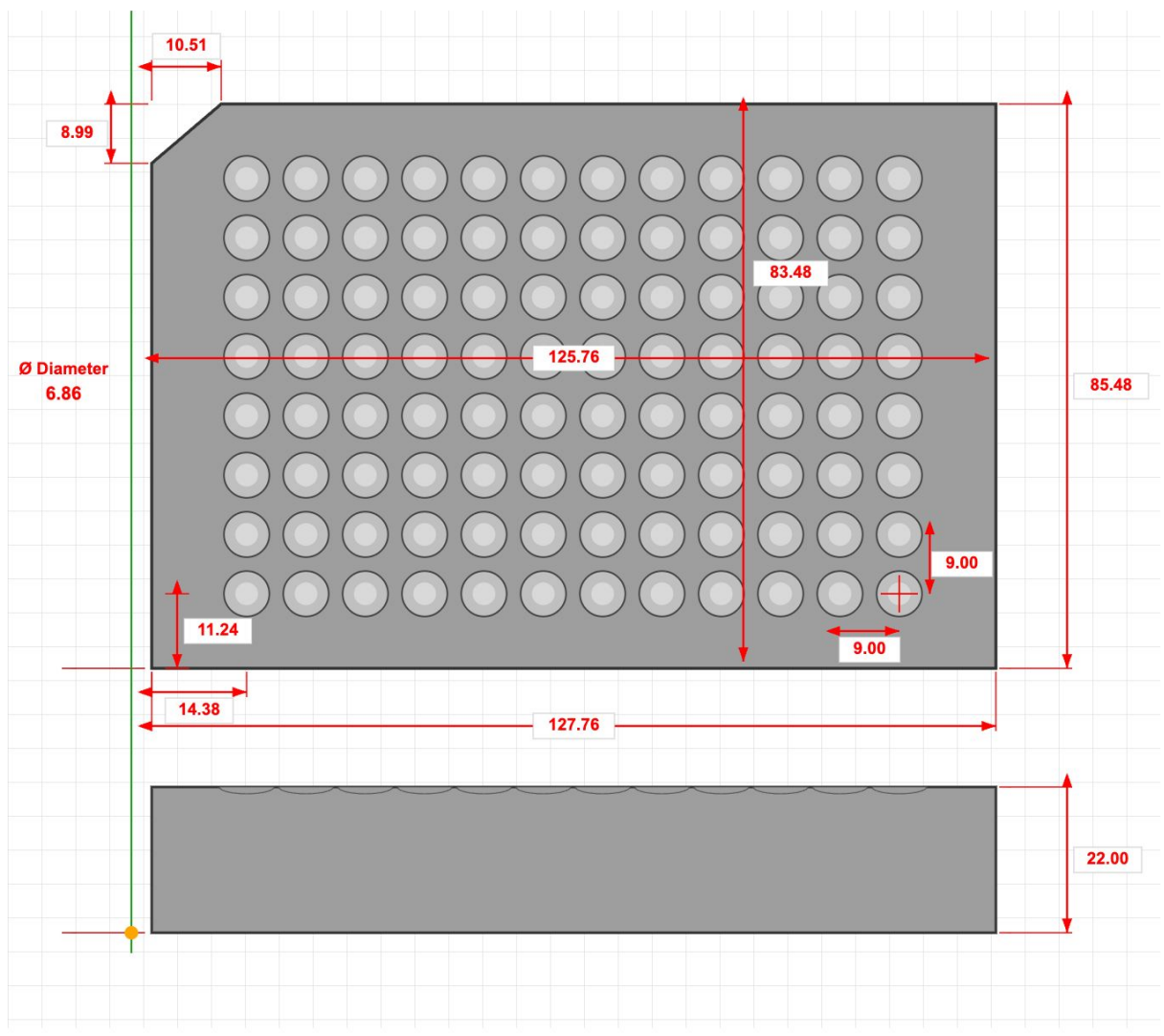


96- well plates

These are available in two different configurations. The variable is the plate height, available in mid-height with deep wells and standard height with shallow wells.

Plate dimensions	127.76 × 85.48 × 22.00 mm
Well dimensions	Ø Diameter 6.86, Depth options: 19.00mm OR 12.00mm
Well volumes	700 µL total volume or 442 µL total volume

One corner of the block is removed to create a chamfer for easier handling. A stepped edge is available on request to improve usability. This is shown in the diagram. The plate is available without a stepped edge; its dimensions are the full dimensions listed in the text.



2. Usage guide

General use is very similar to other HTE chemistry with plastic plates, but sealing, handling, and cleaning can vary from this.

Cleaning: Unlike standard polypropylene plates, these are multi-use and need to be cleaned rather than discarded between runs. This will vary depending on the chemistry being conducted. ReactWise has developed an SOP for cleaning. After cleaning, plates should be dried thoroughly (e.g., in a vacuum oven) to ensure no solvent or mineral residue remains in the wells.

Sealing: This is done as in regular HTE chemistry. ReactWise provides alumina foil and tape with each plate as a sealing solution, which is used internally for all HTE chemistry. Other solutions, such as rubber tops coated in PTFE, are compatible with the plates. Because glass is rigid and does not "flex" like plastic, ensure that seals are applied with even pressure across the entire surface to prevent leaks.

Physical Inspection: Unlike disposable plastic plates, glass plates must be inspected before every run. Users should check for chips along the rim - which can compromise the Alumina foil seal - and "star" cracks at the base of the wells. If a plate is dropped on a hard surface, it should be retired immediately, as micro-stresses can cause failure during subsequent heating or pressurization.

Thermal Management: Glass offers superior thermal conductivity but is susceptible to thermal shock. While plastic plates can often be moved rapidly between temperature extremes, glass plates should be heated or cooled at a controlled ramp rate (typically $<5^{\circ}\text{C}/\text{min}$). Avoid placing a cold plate directly onto a pre-heated block.

Solid Dispensing: A primary advantage over polypropylene is the lack of static electricity. This makes glass plates ideal for solid dispensing, as powders will not "jump" or stick to the well walls. However, care should be taken when adding magnetic stir bars or heavy beads to avoid mechanical impact on the glass bottom.

Robotic Integration: Because glass plates are significantly heavier than plastic, robotic "Grip Force" and "Acceleration" profiles (or similar) must be updated. Additionally, glass plates typically have thicker bases; ensure the liquid handler's Z-offset is set correctly to avoid needle collisions with the bottom of the wells.

3. FAQs

Are the plates suitable for photoredox reactions?

All 96- quartz plates are suitable for photoredox. 384- plates are not polished inside, as the small dimensions mean that polishing could lead to warping of the wells. This can be discussed for a custom solution, but it is not available off the shelf.

What are lead times?

Allow a minimum of 2-4 weeks lead time, including delivery

What solvents are the plates compatible with?

ReactWise does not provide a list of compatible solvents. We are happy to discuss materials depending on your specific chemistries, but are not able to share a generalised list of compatibility for solvents or reagents.

Does ReactWise offer a sealing solution?

All plates are delivered with alumina seals and tape. This has been the most effective sealing method in our lab. The plates are generally compatible with other suppliers' sealing apparatus, such as PTFE-coated rubber tops.

Are other materials available?

Other materials can be accommodated in discussion with ReactWise. These could include materials such as PEEK, ceramic, or others, depending on the use case. Get in touch with us for more details.