

## Thermowell Technical Data Sheet

### Ideal Applications

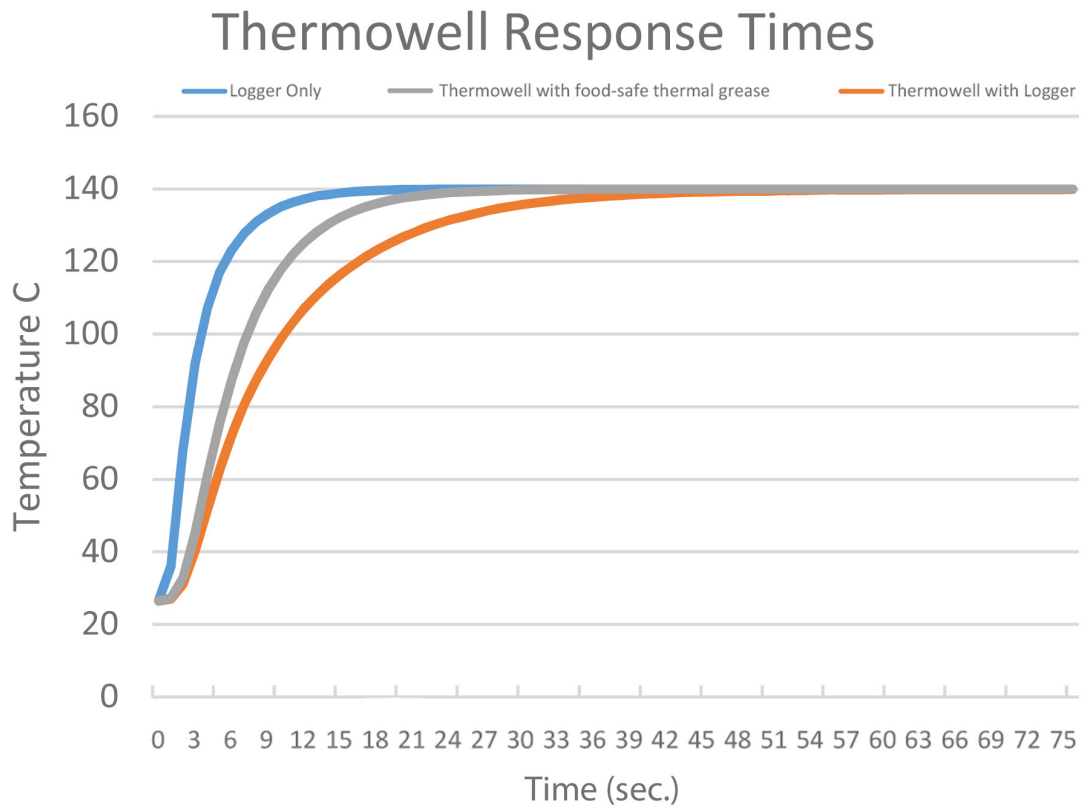
- Continuous Pasteurization
- Continuous Industrial Process
- Glass Jars w/Metal Lids
- Cans / Canning Industry



The Thermowell is comprised of a "well" that can be permanently placed in a process, a matching MPIII Temperature logger that fits inside the Thermowell, and two installation o-rings allowing for the data logger to be easily removed and replaced without impacting the integrity of the product/process seal. The custom-length Thermowell keeps the logger out of the container while still monitoring the critical temperature of the process, of particular importance to the dairy and food packaging industries. There is also less product displacement, giving a more realistic indication of the head space between the lid and product (this is a bigger issue with smaller containers). With the Thermowell a customer can quickly place the well in his container and then screw the logger in place. Conversely, with the Ecklund C-5 or compression fitting the customer has to try to maintain the seal on the product with the logger in place. This is much harder and impossible for most dairy applications where a vacuum on the jar is required. Thermowell solves this problem. Also specific to dairy applications, the product viscosity changes during the Retort process. The product moves or circulates more freely when the logger is outside of the jar.

### Thermowell Response Time Data

Response Time: "T90" is the time it takes for the test logger to reach 90% of the change in temperature. The temperature response stimulus applied was from ambient 25°C to 140.0±0.1°C.



# Thermowell Data Sheet

## Operating Temperatures

-20°C (-4°F) to +140°C (+284°F)

## Temperature Accuracy:

± 0.1°C (±.2°F)

**Operating Pressure:** Up to 10 Bar

## Physical

**Weight:** 0.5 oz. (15 grams)\*

**Material:** 316 stainless steel; Sapphire IR windows

## Monitoring Parameters

**Memory:** 16,000 time/temperature observations

**Sample rates:** Operator programmable 1 sec. to 18 hr. intervals

## Mechanical

### Calibration:

Factory calibrated (NIST traceable)

Field calibration

**Battery Type:** Lithium (field-replaceable)

**Clock accuracy:** 26 seconds per 24 hours

**Certifications:** ATEX (for intrinsic safety)

\*Size and weight are shown for logger body only.

## Methods & Configuration:

A Fluke/Hart1502A Temperature reference was used and set to output data every 1 second and synced with the PC clock that will be utilized for programming and reading the test data logger. The Hart1502A's output was monitored through a serial terminal application. The temperature bath was set to 140°C and allowed to stabilize to 140±0.1°C.

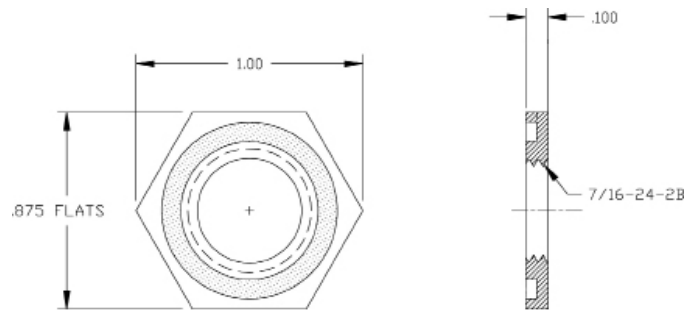
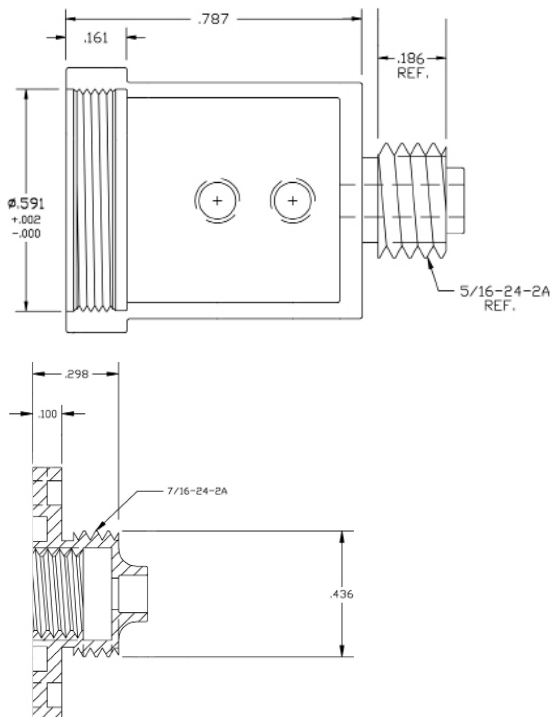
For Thermowell w/ grease, the grease was replaced for each test.

The logger was programmed. Device Under Test (DUT) was placed into ambient oil bath at ambient temperature and allowed to reach thermal equilibrium within the bath (approximately 5 minutes). Then the DUT was moved into the preheated oil bath (140C) noting the start time and reference temperature when the DUT was placed into the bath. Adequate time was allowed for the logger to reach the oil bath temperature (approximately 1 minute). Then the DUT was removed and allowed to cool down.

The data was then read and post-processed for T90 response time.

## Can we do Hi-Temp?

Hi-Temp will be possible with an adapter that allows a standard hi-temp logger to be located in the thermowell at the correct distance. This feature is not yet available. Please contact Mesa with your specific hi-temp needs including number of loggers and we can negotiate this feature on a case-by-case basis.



Available in custom lengths.

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