ThermoVault Max

Extreme Temperature Thermal Barrier

The ThermoVault Max is an extreme, high temperature thermal barrier designed for use with MadgeTech's HiTemp140-M12, HiTemp140-FP and HiTemp140-PT data logger models. This durable enclosure is made from stainless steel with PTFE insulation. The ThermoVault Max barrier can withstand temperatures up to +400 °C in dry heat applications and +250 °C for wet applications when used with the TMAX Wet Seal Kit (sold separately).

With unparalleled time versus temperature performance, the ThermoVault Max provides a best-in-class solution for the harshest of applications. Designed to endure extreme temperature monitoring environments such as furnace profiling, geothermal down-hole recording, dry heat sterilization and oven data logging.

To use the ThermoVault Max, configure and insert any compatible MadgeTech HiTemp140 data logger, hand twist the enclosure cap until securely sealed, and the device is ready to be deployed.

MadgeTech also offers a turnkey Dry Heat Sterilization System including the ThermoVault Max barrier, HiTemp140-M12 data logger and M12 depyrogenation probe.

Features

- 316 Stainless Steel Enclosure
- Small 1.75 inch Diameter
- Submersible
- Withstands temperatures up to +400 °C for 60 minutes continuously

Applications

- Extreme Temperature Monitoring
- Depyrogenation
- Food Processing
- Oven Monitoring
  - Curing Ovens
  - Baking Ovens
  - Batch Ovens
  - Conveyor or Continuous Oven
  - Walk-in/Truck-in Ovens
- Dry Heat Sterilization
- Autoclave Validation
- Furnace/Kiln Profiling
- Geothermal Down-hole Temperature Recording

SPECIFICATIONS

Specifications are subject to change without notice. Specific warranty remedy limitations apply.

GENERAL	
Operating Environment	Refer to the Time vs. Temperature Chart on next page
Enclosure Material	316 Stainless Steel, PTFE, Silicone
Enclosure Dimensions	1.75 in OD x 9.6 in L (44.45 mm OD x 243.8 mm L)
Enclosure Weight	3.0 lb (1350 g)
IP Rating	IP68 rating may be obtained with the Seal Kit installed from -60 °C to 250 °C. Rapid temperature fluctuations may cause ingress.
Compatible Data Loggers	HiTemp140-FP, HiTemp140-PT and HiTemp140-M12* (probe dependent)
Max Sustainable Pressure	60 PSIA

*When using the ThermoVault Max with the HiTemp140-M12 data logger, only certain M12 probes are compatible. Please consult with the a MadgeTech Sales Representative for more information.

TIME VS. TEMPERATURE CHART		
Ambient Temperature	**Exposure Time in Air**	**Exposure Time in Liquid**
-200 °C (-328 °F)	128 minutes	N/A
-180 °C (-292 °F)	137 minutes	N/A
-160 °C (-256 °F)	148 minutes	N/A
-140 °C (-220 °F)	163 minutes	N/A
-120 °C (-184 °F)	183 minutes	N/A
-100 °C (-148 °F)	213 minutes	N/A
-80 °C (-112 °F)	263 minutes	N/A
-60 °C (-76 °F)	368 minutes	319 minutes
-40 °C to +140 °C (-40 °F to +284 °F)	Indefinitely	Indefinitely
150 °C (302 °F)	601 minutes	542 minutes
160 °C (320 °F)	468 minutes	414 minutes
170 °C (338 °F)	396 minutes	345 minutes
180 °C (356 °F)	348 minutes	300 minutes
190 °C (374 °F)	313 minutes	266 minutes
200 °C (392 °F)	286 minutes	241 minutes
210 °C (410 °F)	265 minutes	221 minutes
220 °C (428 °F)	247 minutes	204 minutes
230 °C (446 °F)	233 minutes	190 minutes
240 °C (464 °F)	220 minutes	178 minutes
250 °C (482 °F)	209 minutes	168 minutes
260 °C (500 °F)	200 minutes	N/A
270 °C (518 °F)	192 minutes	N/A
280 °C (536 °F)	184 minutes	N/A
290 °C (554 °F)	178 minutes	N/A
300 °C (572 °F)	172 minutes	N/A
310 °C (590 °F)	166 minutes	N/A
320 °C (608 °F)	161 minutes	N/A
330 °C (626 °F)	157 minutes	N/A
340 °C (644 °F)	153 minutes	N/A
350 °C to 400 °C (662 °F to 752 °F)	60 minutes	N/A

Please consult the measurement range of your data logger for temperatures over 250 °C. (The thermal barrier extends the operating temperature of the data logger up to, but not exceeding the measurement range).

Disclaimer & Terms of Use

Listed specifications can be used to determine maximum allowable exposure times for the HiTemp140 with ThermoVault Max. The barrier extends the operating temperature of the logger up to, but not exceeding, the measurement range. Please consult the measurement range of the probe for temperatures above 250 °C (482 °F).

Both the data logger and ThermoVault Max must be at ambient temperature, approximately 25 °C (77 °F) before being placed in the extreme temperature environment. Immediately following exposure to high temperature, the data logger should be removed from the ThermoVault Max, using appropriate precautions, as it could be VERY hot. Failing to remove the data logger may allow heat trapped in the ThermoVault Max to continue to heat the data logger to potentially unsafe levels.

The ThermoVault Max may take hours to fully cool down. Even if the exterior of the ThermoVault Max is cool to the touch, the interior of the barrier and its contents may still be VERY hot.

The ThermoVault Max is primarily intended for use in dry air environments, but with the addition of the TMAX Wet Seal Kit, the ThermoVault Max may also be used in liquids and steam environments.

If your application involves a ramp up to a temperature above 150 °C (302 °F) and/or any complex temperature profile that isn't a constant process, please contact MadgeTech to determine whether the HiTemp140 with ThermoVault Max is suitable for the application.

To determine if the HiTemp140 with ThermoVault Max is suitable for the application, please provide MadgeTech with a detailed description of your process, including temperatures, durations, ramp times and process media such as air, steam, oil or water. If MadgeTech is unable to definitively calculate the suitability of our product for your application, a test unit outfitted with a high temperature indicator can be provided.

Ordering Information

ThermoVault Max	PN 900000-00	Thermal Barrier for use with the HiTemp140-FP, HiTemp140-PT and HiTemp140-M12 (probe dependent) Data Logger
TMAX Wet Seal Kit	PN 900001-00	Wet Application Seal Kit for use with the ThermoVault Max

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WE BUILD DATA LOGGERS

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