



## va-Q-one<sup>®</sup>

A va-Q-tec TempChain Solution





## Always the right temperature

Vacuum Insulation Panels (VIPs) are used wherever space is limited and excellent thermal insulation is required. va-Q-tec has been pioneering the field since 2001 to help resolve difficult spatial design problems, and offers a range of products including cost effective customized VIPs and heat & cold storage elements containing phase change materials (PCMs).

The temperature-controlled logistics field requires everyone to stay up-dated and innovative to comply with the latest regulations and demands. va-Q-tec created the term "TempChain" to replace "cold chain" to encompass all areas and temperature ranges of temperaturecontrolled logistics regardless of the environment and outside temperature.

### Why va-Q-tec:

- Reliable and safe
- High-performance in all climates
- Door to door solution (no airport restriction)
- Environmental friendly and lightweight
- A solution for any thermal challenge
- Saves space and energy
- No external energy supply needed
- Passive solution prevent technical problem
- 100% VIP and PCM controlled thermal packaging
- Award winning technology
- More than 30 worldwide active patents

***"With our passive technology and expertise, we provide our clients with cost-efficient, safe and green packaging."***

Dr Joachim Kuhn, Founder & CEO



### va-Q-accus define the temperature

Phase Change Material (PCM) accumulates and releases thermal energy during melting and freezing, to perfectly maintain the required product storage temperature for the duration of transportation.

### VIPs maintain the defined temperature

VIPs – Vacuum Insulation Panels – are flat panels for optimized temperature insulation that are based on the principle of the thermos flask. These panels offer unparalleled heat and cold insulation at minimum thickness.

### Qualified High Performance Packaging

As a core component manufacturer, we design and produce products with state of the art solutions and many economic and ecological advantages, such as recycling possibilities and superior quality with an excellent price/performance ratio. Our products are designed with one pack-out configuration for all seasons that simplifies handling and reduces risk. They are validated to strict standards to ensure safe transportation cycles of many days.



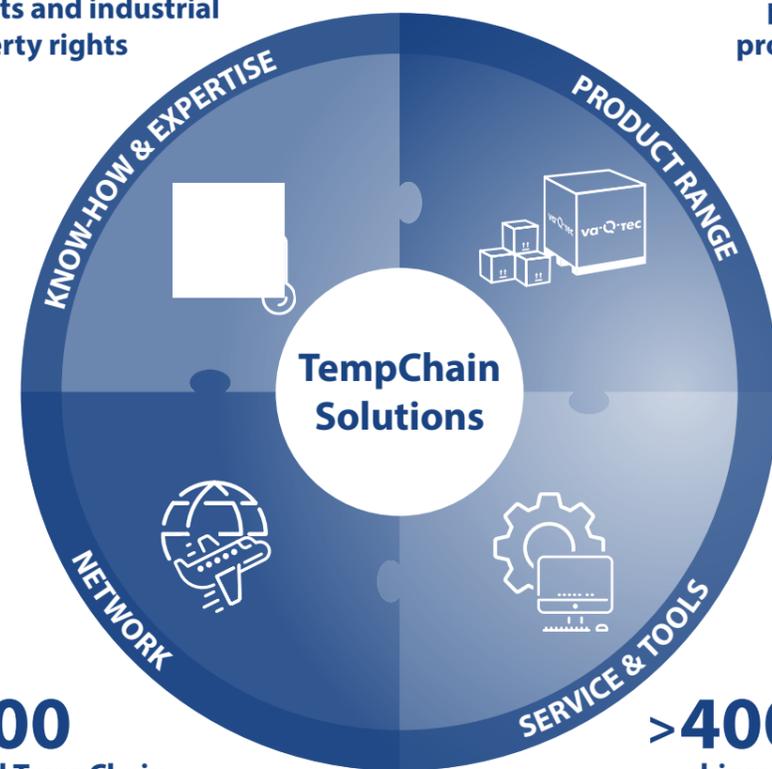
## Business Unit Healthcare & Logistics

>180

patents and industrial  
property rights

>1.000

products and  
product set ups



>500

global TempChain  
Service Centers  
and Drop Points

>400.000

shipments per year  
run via the TempChain  
Service Software



va-Q-tec pioneered TempChain **Know-how & Expertise** already since 2003 by creating the first passive PCM/VIP thermal packaging Solutions. Therefore the company is able to provide extensive engineering consulting and professional laboratory service.



All temperatures and all volumes can be served from va-Q-tec's comprehensive **Product range**. Even the most challenging destinations.

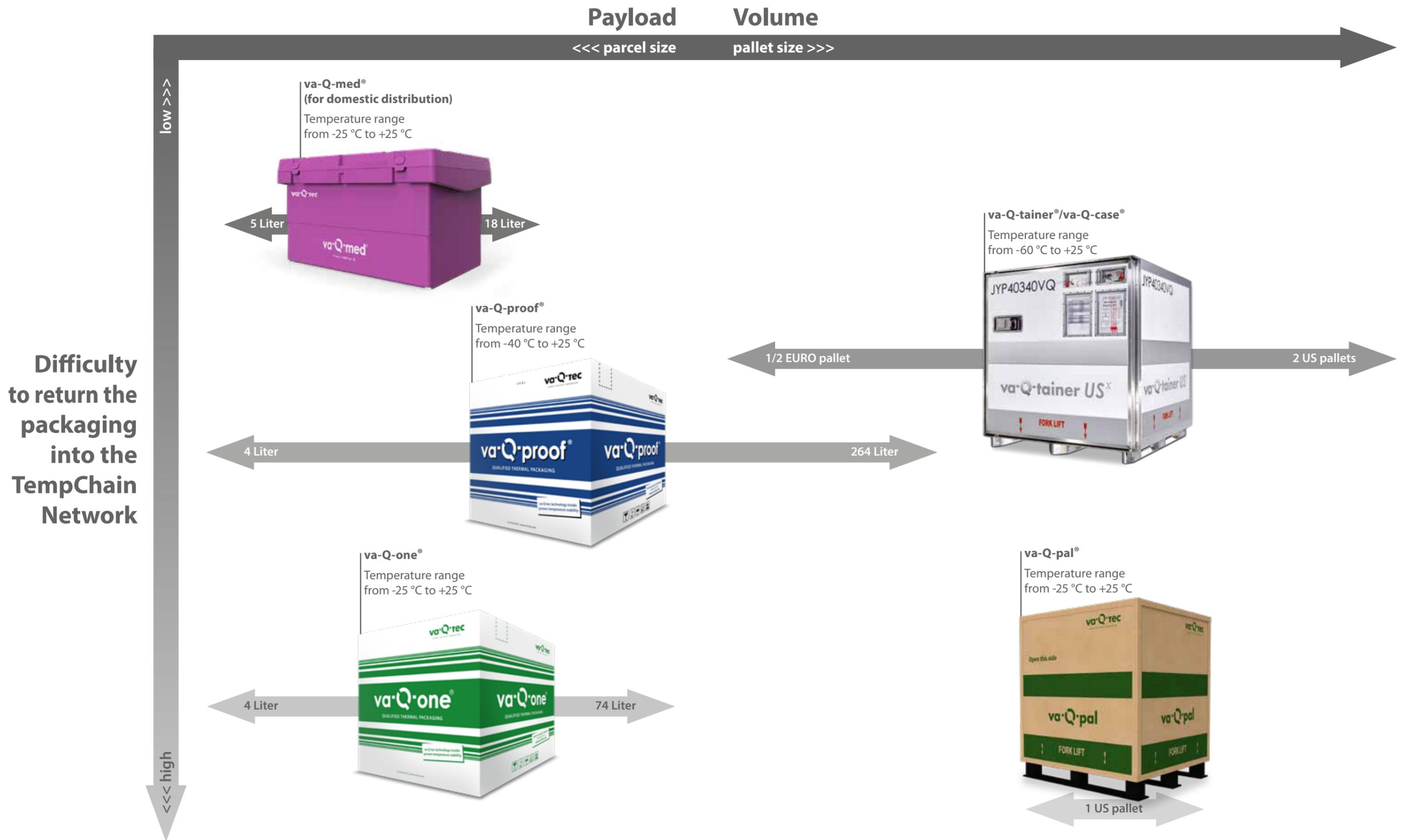


More than 1.5 Mio. boxes and containers have been pre-conditioned in va-Q-tec's qualified TempChain **Service**. This process is enabled by unique **Tools** such as the patented quality control system va-Q-check®.



In va-Q-tec's TempChain **Network**, 2.000 containers and several 10.000 boxes can secure global availability and quick delivery from 35 TempChain Service Centers worldwide.

# The most comprehensive thermal packaging portfolio





- **Designed for transport to remote locations & ready for a second life (Re-qualification and Re-use of components is possible)**
- **Qualified performance: >96h according ISTA 7D**
- **Qualified temperature ranges: from -25 °C (w/o dry ice) to +25 °C**
- **Smooth and cost saving operations: Intuitive design & all-season packout**
- **Core Components & Technology "MADE IN GERMANY"**



va-Q-pad +22G  
for +15 °C to +25 °C



va-Q-pad +05G  
for +2 °C to +8 °C



va-Q-pad -21G  
for -25 °C to -15 °C

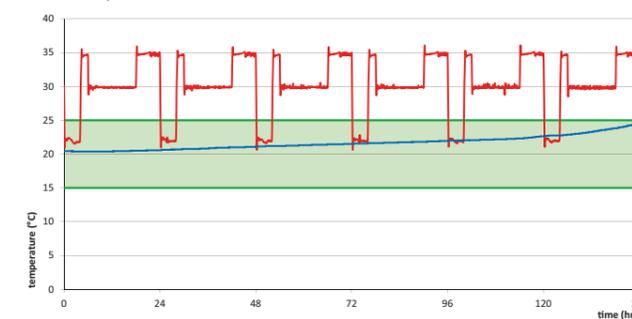
Other temperature ranges available on request (e.g. body temperature, deep frozen, etc.), below -60 °C with dry ice.

Including	External Dimensions (l x w x h)		Internal Product Space (l x w x h)		Payload Volume [L]	Total Weight		Minimum performance	
	[mm]	[inch]	[mm]	[inch]		[kg]	[lbs]	[hours]	[KelvinHours] <sup>1</sup>
va-Q-pad +22G <sup>2</sup>	360 x 345 x 370	14.1 x 13.6 x 14.6	165 x 165 x 165	6.5 x 6.5 x 6.5	4	9.4	20.7	≥ 136	≥ 1346
va-Q-pad +05G <sup>2</sup>	360 x 345 x 370	14.1 x 13.6 x 14.6	165 x 165 x 165	6.5 x 6.5 x 6.5	4	9.4	20.7	≥ 124	≥ 3087
va-Q-pad -21G <sup>2</sup>	360 x 345 x 370	14.1 x 13.6 x 14.6	165 x 165 x 165	6.5 x 6.5 x 6.5	4	12.4	27.3	≥ 115	≥ 5773

## Real test examples

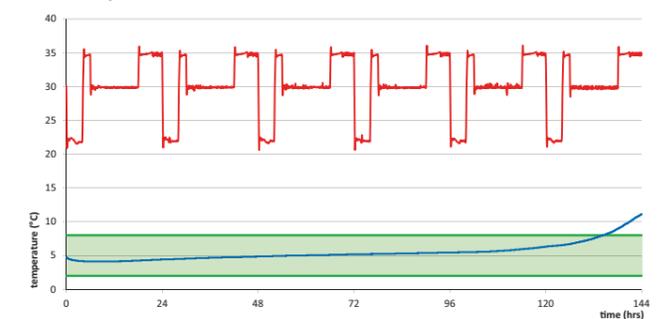
### With va-Q-pad +22G<sup>2</sup>

- Time between +15.0 °C and +25.0 °C: **> 144 hours**
- Temp x time: **> 1461 KelvinHours**



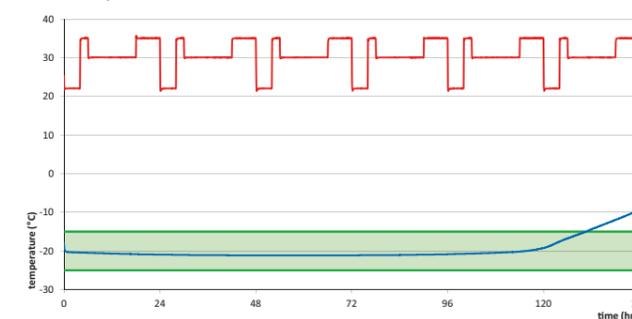
### With va-Q-pad +05G<sup>2</sup>

- Time between +2.0 °C and +8.0 °C: **134 hours**
- Temp x time: **3341 KelvinHours**



### With va-Q-pad -21G<sup>2</sup>

- Time between -25.0 °C and -15.0 °C: **125 hours**
- Temp x time: **6245 KelvinHours**



— ambient — center of good — requested range

<sup>1</sup> The easy way to reliably compare thermal packaging solutions: More information at [www.va-q-tec.com/en/consulting/kelvinhours/](http://www.va-q-tec.com/en/consulting/kelvinhours/)

<sup>2</sup> Qualified test scenario according to ISTA 7D summer

# va-Q-one<sup>®</sup> 8 data

Including	External Dimensions (l x w x h)		Internal Product Space (l x w x h)		Payload Volume [L]	Total Weight		Minimum performance	
	[mm]	[inch]	[mm]	[inch]		[kg]	[lbs]	[hours]	[KelvinHours] <sup>1</sup>
va-Q-pad +22G <sup>2</sup>	380 x 360 x 375	14.9 x 14.2 x 14.8	200 x 200 x 200	7.9 x 7.9 x 7.9	8	9.2	20.3	≥ 131	≥ 1302
va-Q-pad +05G <sup>2</sup>	380 x 360 x 375	14.9 x 14.2 x 14.8	200 x 200 x 200	7.9 x 7.9 x 7.9	8	9.5	20.9	≥ 108	≥ 2700
va-Q-pad -21G <sup>2</sup>	380 x 360 x 375	14.9 x 14.2 x 14.8	200 x 200 x 200	7.9 x 7.9 x 7.9	8	12.2	26.9	≥ 99	≥ 4940

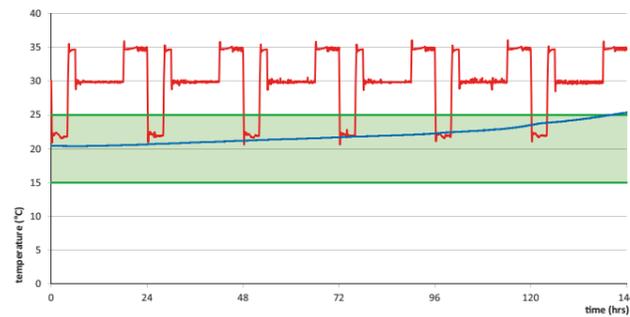
# va-Q-one<sup>®</sup> 23 data

Including	External Dimensions (l x w x h)		Internal Product Space (l x w x h)		Payload Volume [L]	Total Weight		Minimum performance	
	[mm]	[inch]	[mm]	[inch]		[kg]	[lbs]	[hours]	[KelvinHours] <sup>1</sup>
va-Q-pad +22G <sup>2</sup>	480 x 460 x 385	18.9 x 18.1 x 15.2	320 x 320 x 220	12.6 x 12.6 x 8.7	23	12.4	27.3	> 144	> 1469
va-Q-pad +05G <sup>2</sup>	480 x 460 x 385	18.9 x 18.1 x 15.2	320 x 320 x 220	12.6 x 12.6 x 8.7	23	12.3	27.1	≥ 102	≥ 2560
va-Q-pad -21G <sup>2</sup>	480 x 460 x 385	18.9 x 18.1 x 15.2	320 x 320 x 220	12.6 x 12.6 x 8.7	23	15.8	34.8	≥ 87	≥ 4333

## Real test examples

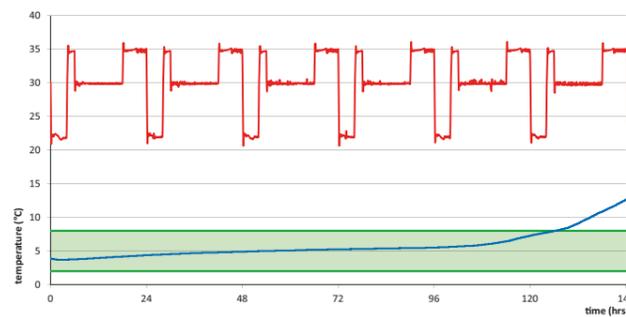
### With va-Q-pad +22G<sup>2</sup>

- Time between +15.0 °C and +25.0 °C: **138 hours**
- Temp x time: **1371 KelvinHours**



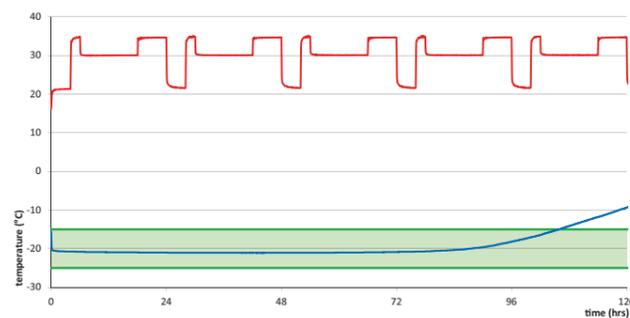
### With va-Q-pad +05G<sup>2</sup>

- Time between +2.0 °C and +8.0 °C: **120 hours**
- Temp x time: **3026 KelvinHours**



### With va-Q-pad -21G<sup>2</sup>

- Time between -25.0 °C and -15.0 °C: **105 hours**
- Temp x time: **5190 KelvinHours**



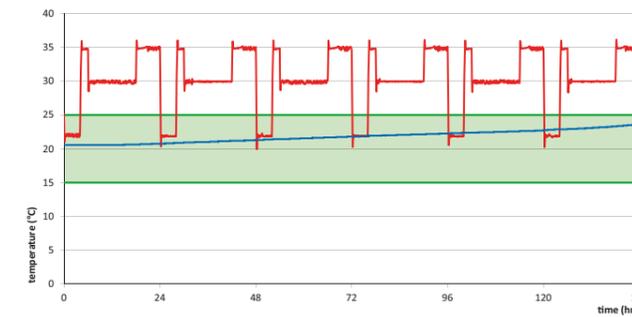
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## Real test examples

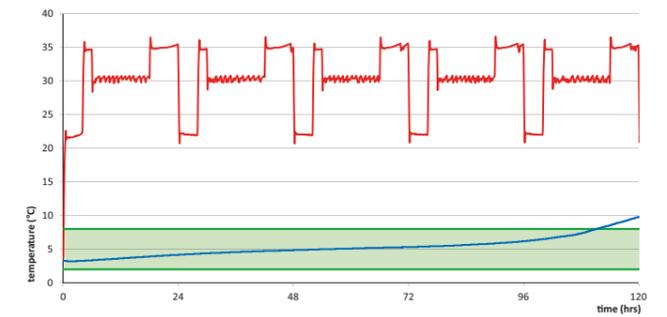
### With va-Q-pad +22G<sup>2</sup>

- Time between +15.0 °C and +25.0 °C: **> 144 hours**
- Temp x time: **> 1467 KelvinHours**



### With va-Q-pad +05G<sup>2</sup>

- Time between +2.0 °C and +8.0 °C: **108 hours**
- Temp x time: **2705 KelvinHours**



— ambient — center of good — requested range

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<sup>2</sup> Qualified test scenario according to ISTA 7D summer

# va-Q-one<sup>®</sup> 43 data

Including	External Dimensions (l x w x h)		Internal Product Space (l x w x h)		Payload Volume [L]	Total Weight		Minimum performance	
	[mm]	[inch]	[mm]	[inch]		[kg]	[lbs]	[hours]	[KelvinHours] <sup>1</sup>
va-Q-pad +22G <sup>2</sup>	575 x 465 x 480	22.6 x 18.3 x 18.9	420 x 320 x 320	16.5 x 12.6 x 12.6	43	17.8	39.2	> 144	> 1496
va-Q-pad +05G <sup>2</sup>	575 x 465 x 480	22.6 x 18.3 x 18.9	420 x 320 x 320	16.5 x 12.6 x 12.6	43	17.9	39.5	≥ 104	≥ 2579
va-Q-pad -21G <sup>2</sup>	575 x 465 x 480	22.6 x 18.3 x 18.9	420 x 320 x 320	16.5 x 12.6 x 12.6	43	23.0	50.7	≥ 93	≥ 4631

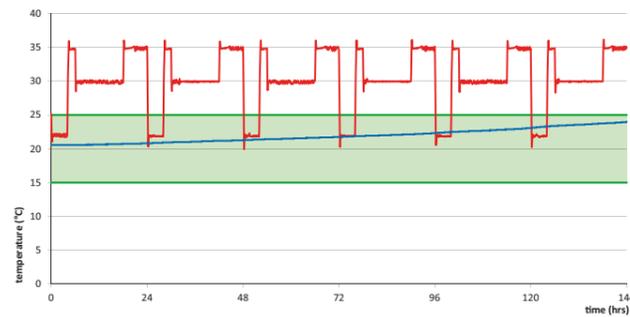
# va-Q-one<sup>®</sup> 74 data

Including	External Dimensions (l x w x h)		Internal Product Space (l x w x h)		Payload Volume [L]	Total Weight		Minimum performance	
	[mm]	[inch]	[mm]	[inch]		[kg]	[lbs]	[hours]	[KelvinHours] <sup>1</sup>
va-Q-pad +22G <sup>2</sup>	595 x 585 x 585	23.4 x 23.0 x 23.0	420 x 420 x 420	16.5 x 16.5 x 16.5	74	27.2	60.0	> 144	> 1411
va-Q-pad +05G <sup>2</sup>	595 x 585 x 585	23.4 x 23.0 x 23.0	420 x 420 x 420	16.5 x 16.5 x 16.5	74	26.4	58.2	≥ 120	≥ 3049

## Real test examples

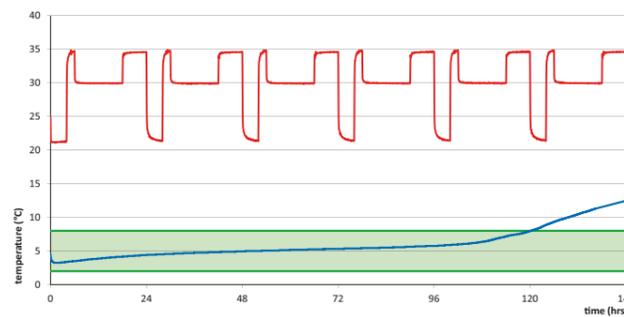
### With va-Q-pad +22G<sup>2</sup>

- Time between +15.0 °C and +25.0 °C: **> 144 hours**
- Temp x time: **> 1467 KelvinHours**



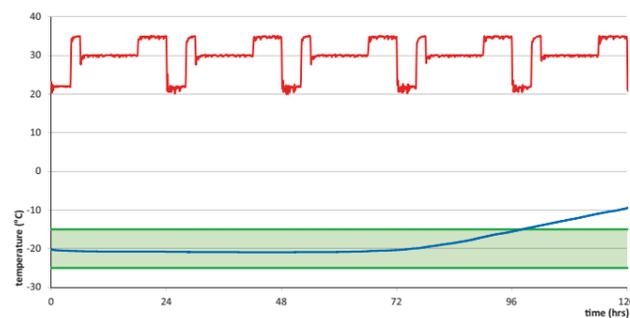
### With va-Q-pad +05G<sup>2</sup>

- Time between +2.0 °C and +8.0 °C: **117 hours**
- Temp x time: **2923 KelvinHours**



### With va-Q-pad -21G<sup>2</sup>

- Time between -25.0 °C and -15.0 °C: **96 hours**
- Temp x time: **4810 KelvinHours**



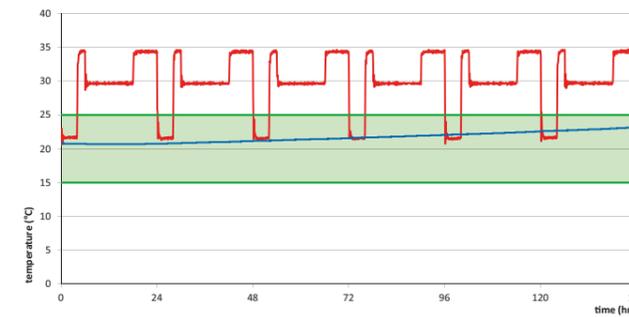
— ambient — center of good — requested range

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## Real test examples

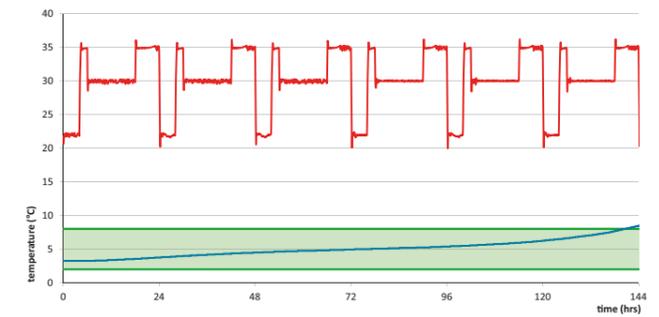
### With va-Q-pad +22G<sup>2</sup>

- Time between +15.0 °C and +25.0 °C: **> 144 hours**
- Temp x time: **> 1411 KelvinHours**



### With va-Q-pad +05G<sup>2</sup>

- Time between +2.0 °C and +8.0 °C: **138 hours**
- Temp x time: **3450 KelvinHours**



— ambient — center of good — requested range

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<sup>2</sup> Qualified test scenario according to ISTA 7D summer

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