

va-Q-tec

ALWAYS THE RIGHT TEMPERATURE



va-Q-med®

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).

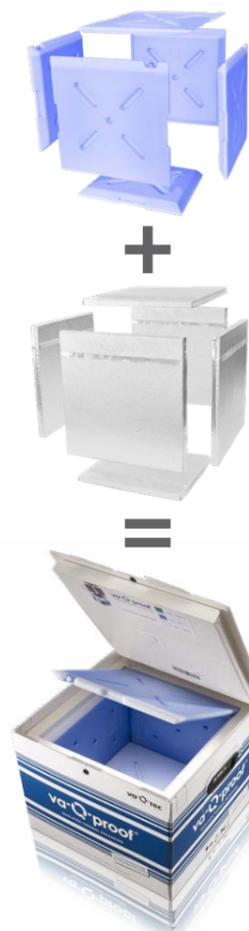
The temperature-controlled logistics field requires everyone to stay up-dated and innovative to comply with the latest regulations and demands. va-Q-tec created the term "TempChain" to replace "cold chain" to encompass all areas and temperature ranges of temperaturecontrolled logistics regardless of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



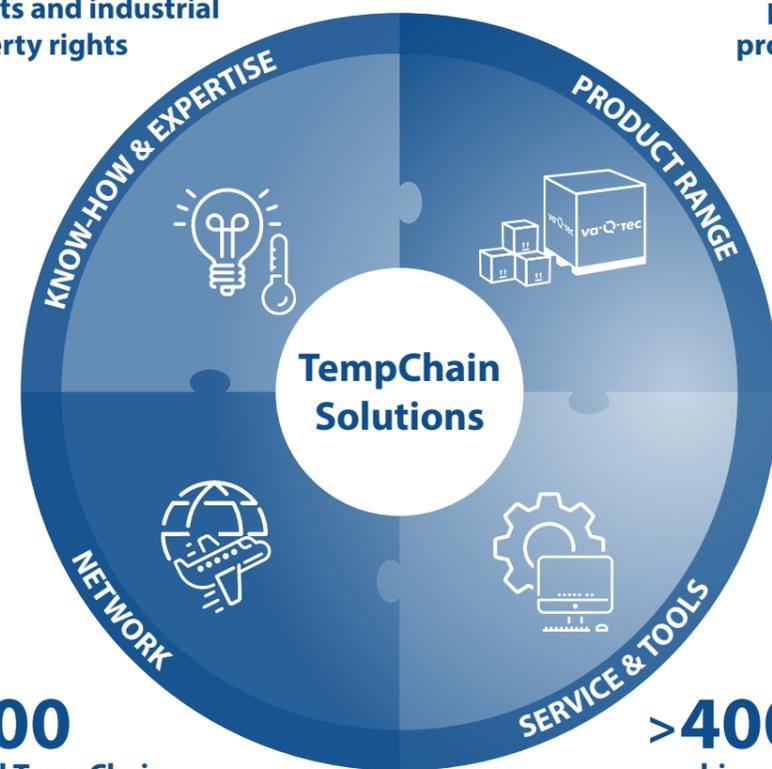
Business Unit Healthcare & Logistics

>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.

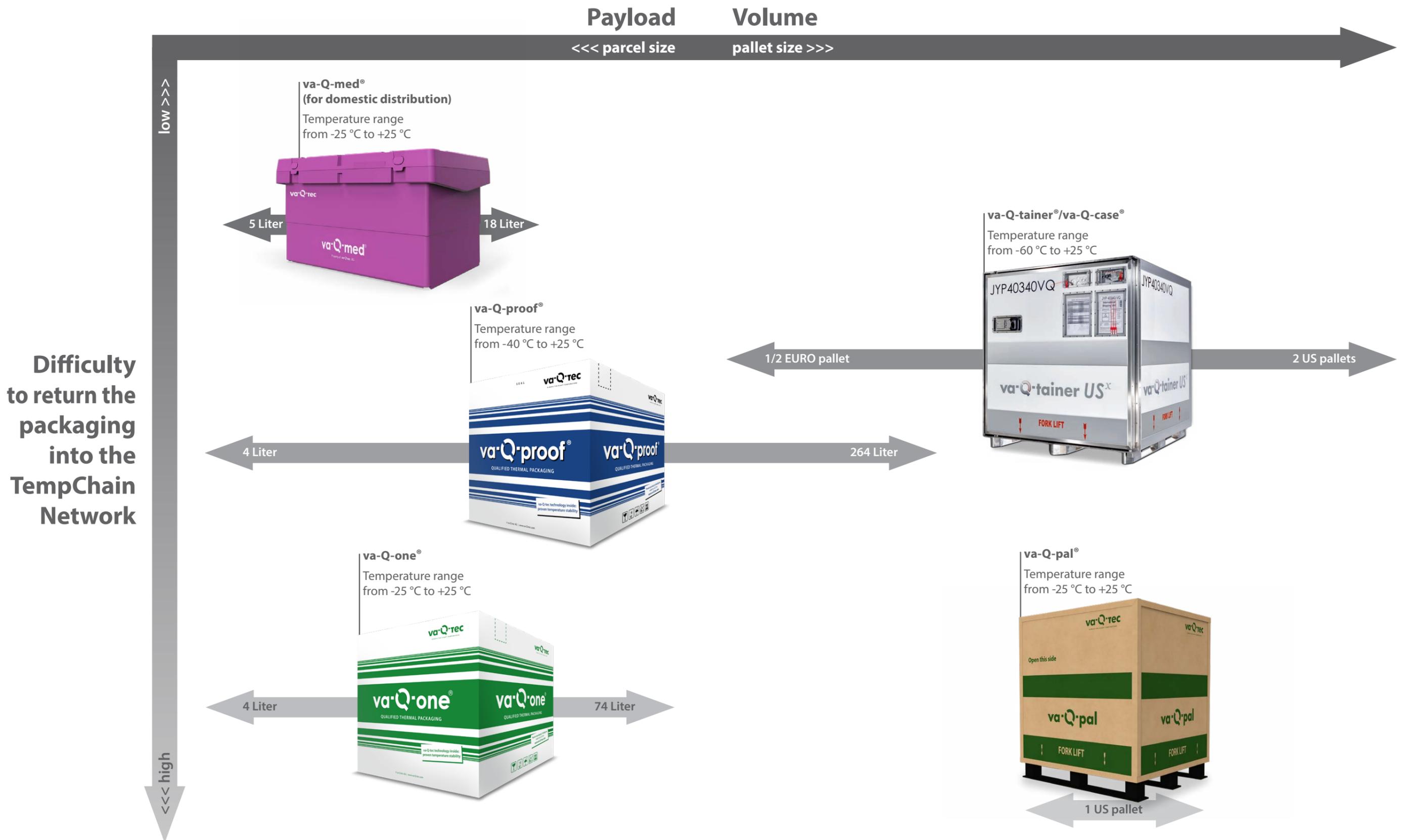


More than 1.5 Mio. boxes and containers have been pre-conditioned in va-Q-tec's qualified TempChain **Service**. This process is enabled by unique **Tools** such as the patented quality control system va-Q-check®.



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 domestic distribution, optimized to fully automated process**
- **Two qualified performance levels: from >36h to >54h according ISTA 7E summer (also valid for winter profile)**
- **Qualified temperature ranges: from -25 °C (w/o dry ice) to + 25 °C (homogenous in every part of the box)**
- **Smooth and cost saving operations: Intensive design & all-season packout**
- **Cost & energy efficient: Cooled & non-cooled goods can be transported in one vehicle**
- **Core Components & Technology “MADE IN GERMANY”**



va-Q-accu +22G
for +15 °C to +25 °C



va-Q-accu +05G
for +2 °C to +8 °C



va-Q-accu -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.

va-Q-med® 7 Standard 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] ¹
va-Q-accu +22G ²	400 x 300 x 325	16.1 x 12.2 x 13.2	245 x 165 x 165	9.7 x 6.5 x 6.5	7	4.6	10.1	≥ 48	≥ 341
va-Q-accu +05G ²	400 x 300 x 325	16.1 x 12.2 x 13.2	245 x 165 x 165	9.7 x 6.5 x 6.5	7	4.6	10.1	≥ 22	≥ 473
va-Q-accu -21G ²	400 x 300 x 325	16.1 x 12.2 x 13.2	245 x 165 x 165	9.7 x 6.5 x 6.5	7	5.5	11.9	≥ 18	≥ 844

va-Q-med® 7 Premium 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] ¹
va-Q-accu +22G ²	400 x 300 x 325	16.1 x 12.2 x 13.2	245 x 135 x 165	9.7 x 5.3 x 6.5	5	5.4	11.9	≥ 49	≥ 368
va-Q-accu +05G ²	400 x 300 x 325	16.1 x 12.2 x 13.2	245 x 135 x 165	9.7 x 5.3 x 6.5	5	5.4	11.9	≥ 30	≥ 684
va-Q-accu -21G ²	400 x 300 x 325	16.1 x 12.2 x 13.2	245 x 135 x 165	9.7 x 5.3 x 6.5	5	6.7	14.8	≥ 34	≥ 1612

Real test examples

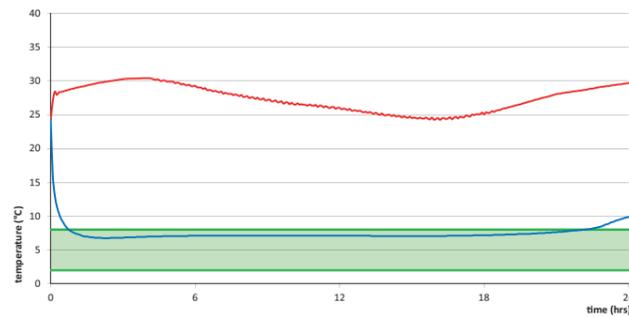
With va-Q-accu +22G²

- Time between +15.0 °C and +25.0 °C: **48 hours**
- Temp x time: **355 KelvinHours**



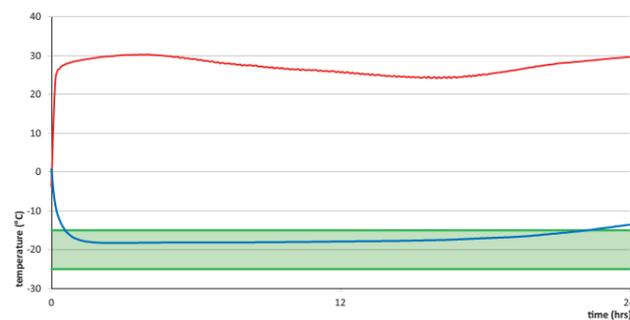
With va-Q-accu +05G²

- Time between +2.0 °C and +8.0 °C: **22 hours**
- Temp x time: **485 KelvinHours**



With va-Q-accu -21G²

- Time between -25.0 °C and -15.0 °C: **20 hours**
- Temp x time: **936 KelvinHours**



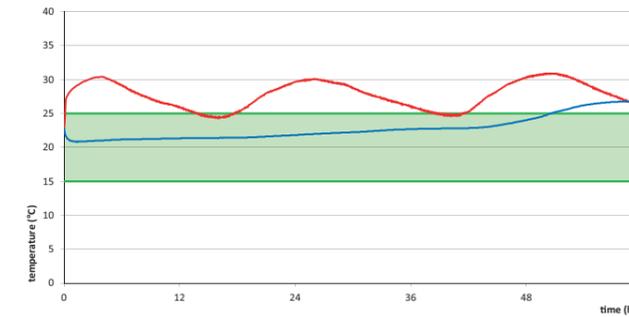
— ambient — center of good — requested range

¹ The easy way to reliably compare thermal packaging solutions: More information at www.va-q-tec.com/en/consulting/kelvinhours/
² Qualified test scenario according to ISTA 7E summer

Real test examples

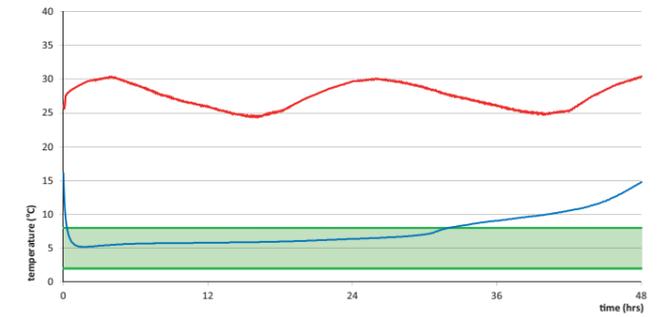
With va-Q-accu +22G²

- Time between +15.0 °C and +25.0 °C: **50 hours**
- Temp x time: **380 KelvinHours**



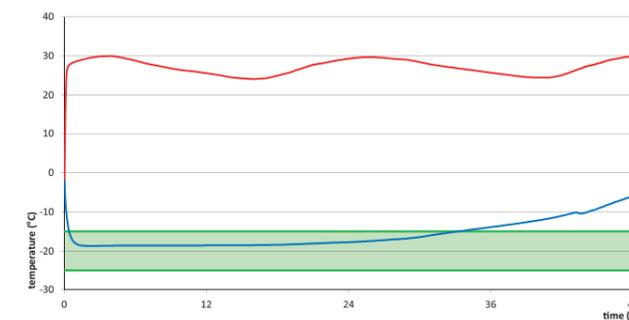
With va-Q-accu +05G²

- Time between +2.0 °C and +8.0 °C: **32 hours**
- Temp x time: **729 KelvinHours**



With va-Q-accu -21G²

- Time between -25.0 °C and -15.0 °C: **34 hours**
- Temp x time: **1612 KelvinHours**



— ambient — center of good — requested range

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va-Q-med® 21 Standard 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] ¹
va-Q-accu +22G ²	600 x 400 x 345	23.5 x 14.9 x 13.2	440 x 250 x 160	17.3 x 9.8 x 6.3	18	9.9	21.8	≥ 69	≥ 504
va-Q-accu +05G ²	600 x 400 x 345	23.5 x 14.9 x 13.2	440 x 250 x 160	17.3 x 9.8 x 6.3	18	10.7	23.6	≥ 36	≥ 806
va-Q-accu -21G ²	600 x 400 x 345	23.5 x 14.9 x 13.2	440 x 250 x 160	17.3 x 9.8 x 6.3	18	11.1	24.5	≥ 23	≥ 1083

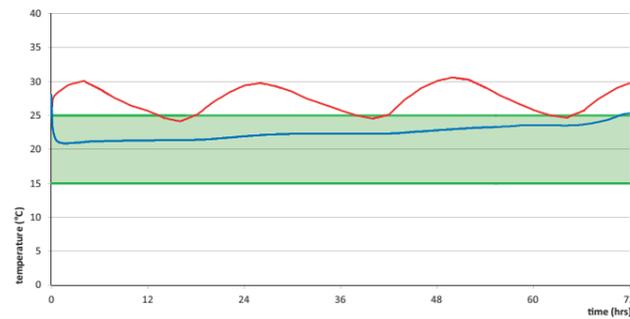
va-Q-med® 21 Premium data

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] ¹
va-Q-accu +22G ²	600 x 400 x 345	23.5 x 14.9 x 13.2	380 x 250 x 160	15.0 x 9.8 x 6.3	15	12.5	27.1	> 72	> 540
va-Q-accu +05G ²	600 x 400 x 345	23.5 x 14.9 x 13.2	380 x 250 x 160	15.0 x 9.8 x 6.3	15	11.5	25.4	≥ 47	≥ 1043
va-Q-accu -21G ²	600 x 400 x 345	23.5 x 14.9 x 13.2	380 x 250 x 160	15.0 x 9.8 x 6.3	15	13.3	29.3	≥ 41	≥ 1935

Real test examples

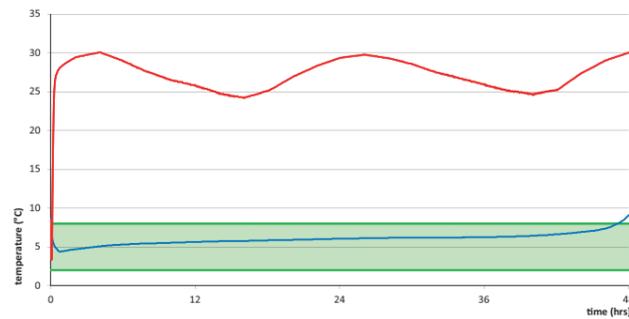
With va-Q-accu +22G²

- Time between +15.0 °C and +25.0 °C: **71 hours**
- Temp x time: **526 KelvinHours**



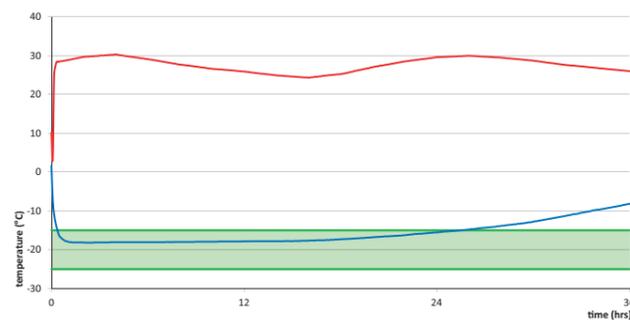
With va-Q-accu +05G²

- Time between +2.0 °C and +8.0 °C: **41 hours**
- Temp x time: **910 KelvinHours**



With va-Q-accu -21G²

- Time between -25.0 °C and -15.0 °C: **24 hours**
- Temp x time: **1133 KelvinHours**



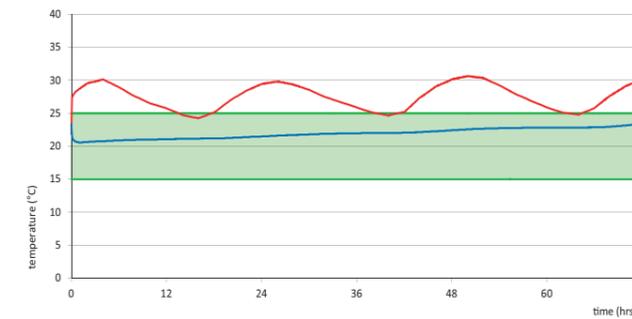
— ambient — center of good — requested range

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Real test examples

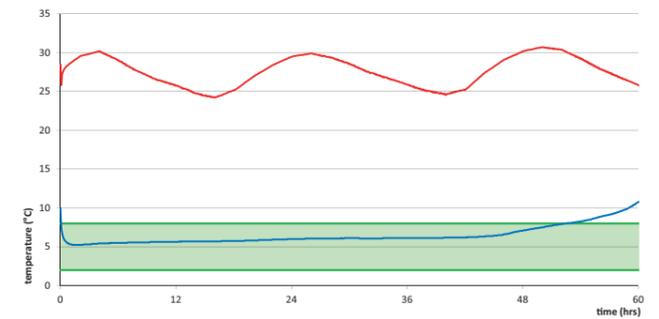
With va-Q-accu +22G²

- Time between +15.0 °C and +25.0 °C: **> 72 hours**
- Temp x time: **> 540 KelvinHours**



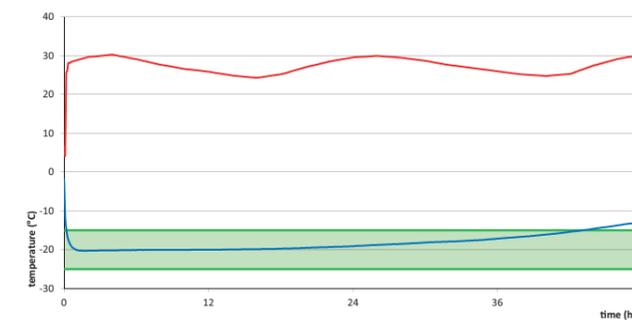
With va-Q-accu +05G²

- Time between +2.0 °C and +8.0 °C: **50 hours**
- Temp x time: **1110 KelvinHours**



With va-Q-accu -21G²

- Time between -25.0 °C and -15.0 °C: **42 hours**
- Temp x time: **1982 KelvinHours**



— ambient — center of good — requested range

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² Qualified test scenario according to ISTA 7E summer

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