

Product Data Sheet va-Q-shell



DESCRIPTION

va-Q-shell is a customized, rigid shell insulation system for heat storage tanks. Its purpose is to increase the energy efficiency of tanks to a label rating of A and A+ according to the EU regulation 812/2013. The insulation consists primarily of two PU half shells with integrated vacuum insulation panels (VIP). The shell parts are assembled via a tongue-and-groove system. Cut-outs for piping, inspection ports and other connections are also provided. Baseplates or fixation points for technical devices like displays, sensors or external heat exchangers are available on request. va-Q-shell can be individually adapted for variously shaped hot water tanks.

TECHNICAL PROPERTIES

Standard properties are as listed below. Different dimensions or properties are available on request. Different inner or outer coatings and options for flange cut-outs are also available on request.

Property	Value	Tolerance
Outer Diameter ¹	up to 2,000 mm	± 2 %
Height	up to 3,000 mm	± 1 %
Wall thickness	up to 200 mm	± 5 mm
Density VIP	160 – 230 kg/m ³	---
Density PU	50 – 70 kg/m ³	---
Thermal Conductivity VIP ²	< 0.0035 W/(m*K)	---
Thermal Conductivity PU ²	< 0.025 W/(m*K)	---
Operating Temperature	0 - 95 °C	---
Operating Relative Humidity	0 - 60 %	---
Compressive Load	180 kPa (at 10 % deformation)	---

¹ shells with diameters > 1,200 mm are split into three or more parts

² following DIN EN 12667 at 10 °C and at delivery

PERFORMANCE EXAMPLE

The va-Q-shell is a custom product. U-values and heat loss is case dependent and calculated accordingly. Support for calculations is available on request. The following section provides an **exemplary comparison** of va-Q-shell and conventional insulations made of pure PU or polyester fleece:

Tank Specifications	
Storage Volume	300 l
Diameter	500 mm
Height	1,550 mm
Tank Material	steel
Average Operating Temperature	65° C
Connectors	1 x ¾ " 6 x 1 " 1 x 1 ½ " arranged vertically
Flange Diameter	180 mm

A calculation including thermal bridge effects caused by connectors and joints results in the following performance:

	va-Q-shell	pure PU insulation	Polyester fleece
Wall Thickness	80 mm	80 mm	80 mm
Thickness of Integrated VIP	20 mm	---	---
Minimal U-Value	0.13 W/(m²*K)	0.30 W/(m²*K)	0.50 W/(m²*K)
Total Heat Loss Rate	1.0 kWh/d	1.4 kWh/d	1.8 kWh/d
Energy Label Reached (acc. EU 812/2013)	A	B	C
Potential savings compared to a pure PU insulation	292 kWh / year	146 kWh / year	---

CONTACT

Mail	technics@va-Q-tec.com
Phone	+49 (0) 931 35 942 0
Homepage	www.va-q-tec.com/en/business-areas/technics-industry/

SAFETY INFORMATION

va-Q-shell is an article according to the REACH regulation (EC) No. 1907/2006 and the OSHA Hazard Communication Standard, 29 CFR Subpart 1910.1200(c). For articles, the preparation of a safety data sheet is not required. Even though this article is not subjected to any obligation to classify or label according to CLP regulation (EC) No. 1272/2008, the va-Q-tec AG provides a safety data sheet for the core material of va-Q-shell on request.

Furthermore, the article contains no Substances of Very High Concern (SVHC) above the threshold 0.1% w/w.

LEGAL NOTES / DISCLAIMER

The data presented in this technical data sheet are in accordance with the present state of our knowledge.

All numbers and features proposed in this data sheet (e.g. lifetime) were determined under test conditions in the laboratory and therefore represent a nonbinding and purely scientific value. There are no guarantees associated with these values. Only the respectively agreed warranty period and warranty rights apply.

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We reserve the right to change the product values and features. The respective current valid version of this technical data sheet applies and is published on our homepage.

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