Summary of	EN12977-3	HEAT STORE test results	Licence Number	011-7S2535 T
Annex to Solar KEYMARK Certificate			Issued	2015-11-20

Company	Vaillant GmbH		Country	Germany	
Brand (optional)	Vaillant		Website	www.vaillant.com	
Street	Berghauser Strasse 40		E-mail	info@vaillant.com	
Postal Code	42859	Remscheid	Tel. / Fax	+49	(0)2191-180

Solar heat store - general description			
Application(s)		Hot water	
Direct solar loop / heat exchanger		Internal heat exchanger	
Direct hot water loop / heat exchanger		Direct	
Internal auxiliary heating (I)	Internal heat exchanger	Internal auxiliary heating (II)	None
Store location options	Indoor only	Store geometri	Vertical cylinder

Heat store parameters and test results

Parameter		Source[1]	Unit	VIH S1 150/4 B	VIH S1 250/4 B	VIH S2 250/4 B	VIH S1 350/4 B	VIH S2 350/4 B
Weight	Weight of the unit (empty) incl. insulation	M	kg	67.7	90.7	104.5	129.2	135.0
Size	Gross height of unit incl. insulation	M*	mm	1064	1539	1539	1700	1700
	Gross width incl. insulation	M*	mm	600	600	600	700	700
	Gross depth incl. insulation	M*	mm	600	600	600	700	700
Volumes	Nominal - total	M*	litres	162	254	246	335	330
	Effective - total **(out of simulation)**	L	litres	161	264	264	367	367
	Auxiliary heated volume (I)	L	litres	-	-	106	-	147
	Auxiliary heat exchanger	M*	litres	-	-	5.6	-	4.6
	Solar loop heat exchanger	M*	litres	8.9	8.9	8.9	10.4	10.4
Insulation	Thickness on top	M	mm	30...115	30...115	30...115	70...150	70...150
	Thickness on sides	M	mm	50	50	50	75	75
	Thickness on bottom	M	mm	30...164	30...164	30...164	20...100	20...100
Others	Max. operation pressure (solar loop)	M	kPa	6	6	6	6	6
	Max. operation pressure (hot water)	M	kPa	10	10	10	10	10
	Max. operation pressure (space heating)	M	kPa	-	-	10	-	10
	Max. operation temperature (solar loop)	M	°C	120	120	120	120	120
	Material of store (water enclosure part)	M	-	enamelled steel				
	Corrosion protection	M	-	Magnesium anode				

Notes [1] *Source of information* — *L: Laboratory test result* — *M: Manufacturers information*

Testing Laboratory	TÜV Rheinland Energie und Umwelt GmbH
Website	http://www.tuv.com/st
Test report id. number	21227422.002
Date of test report	2015-11-20

Comments of test lab laboratoire

The electrical auxilliary heater is included into the pump unit and connected to the solar heat exchanger! The Types VIH S1 150/4 B and VIH S2 250/4 B were fully tested according to EN 12977-3.

TÜVRheinland® Genau. Richtig. st lab TÜV Rheinland Energie und Umwelt GmbH Am Grauen Stein 51105 Köln

All values are subject to some uncertainty.

Version 0.4, 2014-05-05

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Measured thermal parameters

Parameter		Source[1]	Unit	**VIH S1 150/4 B**	VIH S1 250/4 B	VIH S2 250/4 B	VIH S1 350/4 B	**VIH S2 350/4 B**
Thermal parameters	Total effective thermal capacity	L	kJ/K	668.039	1095.42	1095.42	1522.8	1522.8
	Thermal capacity of aux. heated part I	L	kJ/K	-	-	439.827	-	609.948
	Thermal capacity of aux. heated part II	L	kJ/K	-	-	-	-	-
	Stand-by heat loss rate	L	W/K	1.67	1.82	1.82	2.15	2.15
	Effective vertical heat conductivity	L	W/(m*K)	1.7	2.33	2.33	2.33	2.33
	Stratification number (during discharge)	L	-	70	97	97	97	97
	UA-value, solar heat exchanger	L	W/K	148	177	177	320	320
	at mean temperature difference	L	K	10	10	10	10	10
	at mass flow	L	[kg/h]	100	200	200	300	300
	UA-value, hot water heat exchanger	L	W/K	-	-	-	-	-
	at mean temperature difference	L	K	-	-	-	-	-
	at mass flow	L	[kg/h]	-	-	-	-	-
	UA-value, space heat exchanger	L	W/K	-	-	-	-	-
	at mean temperature difference	L	K	-	-	-	-	-
	at mass flow	L	[kg/h]	-	-	-	-	-
	UA-value, auxiliary heat exchanger	L	W/K	-	-	182	-	224
	at mean temperature difference	L	K	-	-	20	-	20
	at mass flow	L	[kg/h]	-	-	900	-	900

Notes [1] *Source of information* *L: Laboratory test result* *M: Manufacturers informatio*

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Test report id. number	21227422.002
Date of test report	2015-11-20

Comments of test lab laboratoire

No comments

Version 0.4, 2014-05-05

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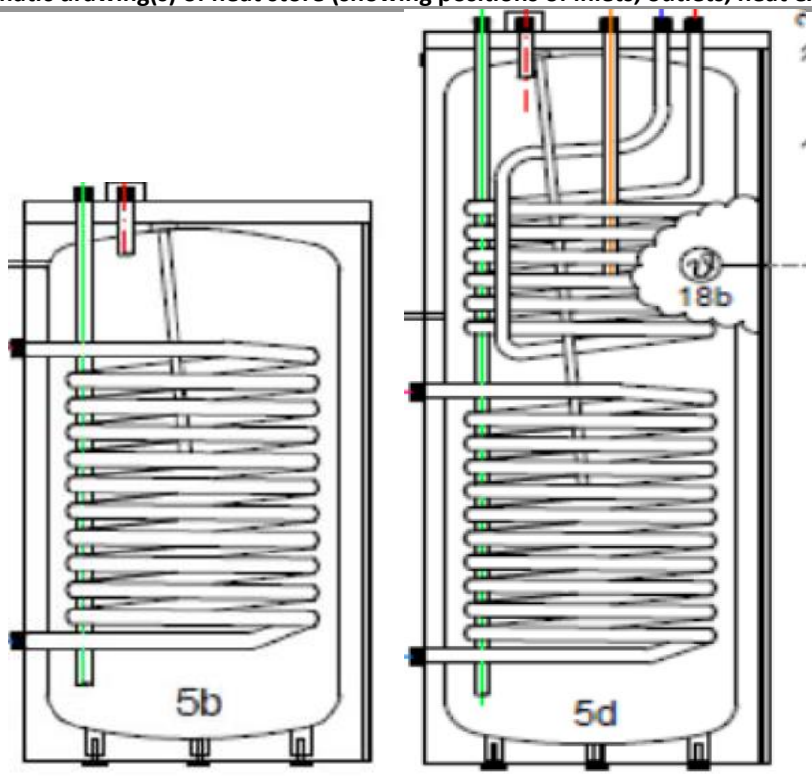
Schematic drawing(s) of heat store (showing positions of inlets, outlets, heat exchangers, sensors etc.)



Parameter			Source[1]	Unit	VIH S1 150/4 B	VIH S1 250/4 B	VIH S2 250/4 B	VIH S1 350/4 B	VIH S2 350/4 B
Relative positions of inlets, outlets, sensors and other inserts in the store - all related to the indicated reference point	Cold water inlet		L	%	20	5	5	22	22
	Hot water outlet		L	%	100	100	100	100	100
	Collector loop inlet		L	%	80	56	56	44	44
	Collector loop outlet		L	%	14	15	15	12	12
	Space heating inlet		L	%	-	-	-	-	-
	Space heating outlet		L	%	-	-	-	-	-
	Auxiliary heating inlet		L	%	-	-	100	-	98
	Auxiliary heating outlet		L	%	-	-	59	-	66
	Lower point of electrical heater		L	%	-	-	-	-	-
	Temp. sensor 1	Auxilliary heater	L	%	-	-	59	-	61
	Temp. sensor 2	Optional info on usage	L	%	-	-	-	-	-
	Temp. sensor 3	Optional info on usage	L	%	-	-	-	-	-
	Temp. sensor 4	Optional info on usage	L	%	-	-	-	-	-
	Temp. sensor 5	Optional info on usage	L	%	-	-	-	-	-
	Temp. sensor 6	Optional info on usage	L	%	-	-	-	-	-
	Reference point for all positions above		L	inner bottom of tank					

Notes [1] *Source of information* *L: Laboratory test result* *M: Manufacturers information*

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