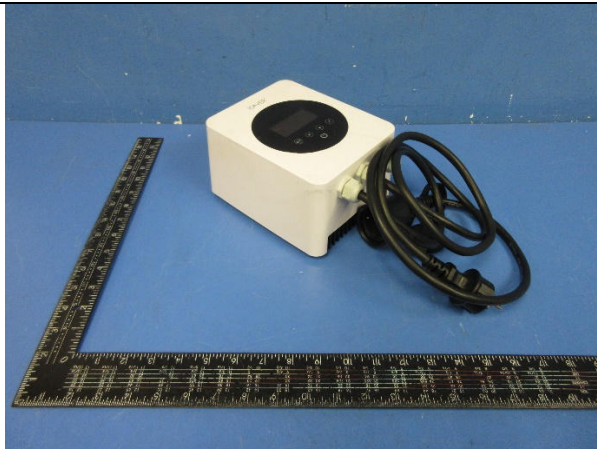


Prüfbericht-Nr.: <i>Test Report No.:</i>	50106099 003	Auftrags-Nr.: <i>Order No.:</i>	170107655	Seite 1 von 6 <i>Page 1 of 6</i>	
Kunden-Referenz-Nr.: <i>Client Reference No.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	10.04.2019		
Auftraggeber: <i>Client:</i>	AQUAGEM ELECTRIC LIMITED Room 2217,2218, No.69 Xianlie Road Central, Guangzhou 510095, P.R.China				
Prüfgegenstand: <i>Test item:</i>	Water pump controller				
Bezeichnung / Typ-Nr.: <i>Identification / Type No.:</i>	iSAVER+1100, iSAVER+1500, iSAVER+2200				
Auftrags-Inhalt: <i>Order content:</i>	Product specification test				
Prüfgrundlage: <i>Test specification:</i>	Test according to client's requirement				
Wareneingangsdatum: <i>Date of receipt:</i>	09.04.2019				
Prüfmuster-Nr.: <i>Test sample No.:</i>	A000903316-001				
Prüfzeitraum: <i>Testing period:</i>	15.04.2019				
Ort der Prüfung: <i>Place of testing:</i>	See page 2				
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Guangdong) Ltd.				
Prüfergebnis*: <i>Test result*:</i>	See Other				
geprüft von / tested by:		kontrolliert von / reviewed by:			
Marco Yuan /		Lily Cai /			
15.04.2019	Project manager	16.04.2019	Reviewer		
Datum <i>Date</i>	Name / Stellung <i>Name / Position</i>	Unterschrift <i>Signature</i>	Datum <i>Date</i>	Name / Stellung <i>Name / Position</i>	Unterschrift <i>Signature</i>
Sonstiges / Other: Refer to report					
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>			
* Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested					
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>					

General remarks

This test report shall not be reproduced except in full without the written approval of the testing laboratory.

The test results presented in this report relate only to the item tested.

“(see remark #)” refers to a remark appended to the report.

“(see appended table)” refers to a table appended to the report.

Throughout this report a point is used as the decimal separator.

Remark:

- This report is update from report 50106099 001 with additional water pump controller models.
- Water pump controller models iSAVER+1100, iSAVER+1500, iSAVER+2200 are identical with model CPC-2150 in report 50106099 001 with same construcion, controlling program except appearance, name.
- Enclosed test content is adopted from report 50106099 001. For test details, please refer to report 50106099 001.




- Test place:

AQUAGEM ELECTRIC LIMITED


Floor 5, C6 Building, Nanlong Industrial Zone, Panyu District, Guangzhou, P. R. China

Marking label:

iSAVER⁺

Model: iSAVER⁺2200
Input: AC 1PH 220~240V 50Hz 12A
Output: AC 1PH 0~240V 20-49Hz 2.2kW
For pump: 1PH max input power 2.2kW



C2522SWB01193013


AQUAGEM[™]

SA100

SWIMMING POOL PUMP




H 14-5m	Q 40-270L/min		
Hmax 14.5m	Qmax 310L/min		
220-240V	50Hz	3.8A	P ₁ 0.75kW
2900 r/min	PH1	IP 55	Class 155(F)
AMB 40°C	S1	CAP 15uF/450V	
Maximum Water Temperature 50°C			
Thermally Protected			

WARNING



MOTOR MUST BE GROUNDED IN ACCORDANCE WITH LOCAL AND NATIONAL ELECTRIC CODES. COMPONENT COVER MUST BE IN PLACE BEFORE OPERATION TO PREVENT ELECTRICAL SHOCK OR INJURY. DO NOT RUN PUMP DRY.

Date 08/2017

Test content adopted from report 50106099 001:

Unit Under Test (UUT)		Water pump
Model / Type under test.....		SA100
Rated Voltage and Frequency.....		220-240V~, 50Hz, 750W
Unit Under Test (UUT)		Water pump controller
Model / Type under test.....		CPC-2150
Test case does not apply to the test object		N /A
Test item does meet the requirement.....		P(ass)
Test item does not meet the requirement.....		F(ail)
Testing		
Date of receipt of test item		See cover page
Date(s) of performance of test.....		See cover page
Test Condition		
Ambient temperature		24.5~26.1°C
Relative humidity		58%~73%
Test Voltage and frequency		AC230V 50Hz
Size of water pipe.....		DN50
Size of valve.....		DN50

Summary of results:
Condition 1 Table: pump SA100 without speed controller:

Discharge pressure (MPa)	Input power (kW)	Current (A)	Motor rotation speed (rpm)	Flow rate (l/m)	Flow rate (m ³ /h)	Delivery height (m)	Water pump power (kW)	System efficiency (%)
0.000	0.760	3.401	2832	300.8	18.05	1.10	0.054	7.11
0.010	0.761	3.405	2831	284.5	17.07	2.12	0.099	12.95
0.020	0.759	3.402	2831	273.0	16.38	3.14	0.140	18.45
0.030	0.760	3.392	2832	257.4	15.44	4.16	0.175	23.02
0.040	0.756	3.963	2831	240.3	14.42	5.18	0.203	26.90
0.050	0.746	3.987	2830	226.2	13.57	6.20	0.229	30.71
0.060	0.737	3.981	2833	207.5	12.45	7.22	0.245	33.21
0.070	0.715	3.894	2840	187.6	11.26	8.24	0.253	35.32
0.080	0.702	3.645	2846	170.6	10.24	9.26	0.258	36.77
0.090	0.684	3.894	2854	150.2	9.01	10.28	0.252	36.88
0.105	0.476	3.037	2919	0.0	0.00	11.81	0.000	0.00

Condition 2 Table: pump SA100 with pump speed controller CPC-2150:

Controller setting (rpm)	Discharge pressure (MPa)	Input power (kW)	Current (A)	Motor rotation speed (rpm)	Flow rate (l/m)	Flow rate (m ³ /h)	Delivery height (m)	Water pump power (kW)	System efficiency (%)
2900	0.000	0.748	5.225	2813	297.2	17.83	1.10	0.053	7.14
	0.020	0.752	5.281	2802	266.7	16.00	3.14	0.137	18.19
	0.030	0.749	5.326	2801	250.3	15.02	4.16	0.170	22.71
	0.040	0.744	5.219	2805	232.4	13.94	5.18	0.197	26.43
	0.050	0.737	5.193	2802	220.7	13.24	6.20	0.224	30.33
	0.060	0.728	5.150	2804	201.9	12.11	7.22	0.238	32.71
	0.070	0.711	5.064	2813	185.3	11.12	8.24	0.249	35.09
	0.080	0.693	4.913	2823	165.8	9.95	9.26	0.251	36.20
	0.090	0.667	4.788	2833	141.8	8.51	10.28	0.238	35.71
0.103	0.466	3.497	2908	0.0	0.00	11.61	0.000	0.00	

Controller setting (rpm)	Discharge pressure (MPa)	Input power (kW)	Current (A)	Motor rotation speed (rpm)	Flow rate (l/m)	Flow rate (m ³ /h)	Delivery height (m)	Water pump power (kW)	System efficiency (%)
2200	0.000	0.373	2.999	2152	226.8	13.61	1.1	0.041	10.92
	0.010	0.375	3.198	2152	201.8	12.11	2.1	0.070	18.64
	0.020	0.371	2.905	2152	181.1	10.87	3.1	0.093	25.04
	0.030	0.363	2.865	2155	159.2	9.55	4.2	0.108	29.81
	0.040	0.354	2.798	2162	135.4	8.12	5.2	0.115	32.37
	0.056	0.249	2.022	2217	0.0	0.00	6.8	0.000	0.00

Controller setting (rpm)	Discharge pressure (MPa)	Input power (kW)	Current (A)	Motor rotation speed (rpm)	Flow rate (l/m)	Flow rate (m ³ /h)	Delivery height (m)	Water pump power (kW)	System efficiency (%)
1700	0.000	0.219	1.882	1673	175.5	10.53	1.1	0.032	14.40
	0.010	0.217	1.890	1674	136.1	8.17	2.1	0.047	21.72
	0.020	0.215	1.827	1679	114.2	6.85	3.1	0.059	27.25
	0.032	0.169	1.492	1716	0.0	0.00	4.4	0.000	0.00

Controller setting (rpm)	Discharge pressure (MPa)	Input power (kW)	Current (A)	Motor rotation speed (rpm)	Flow rate (l/m)	Flow rate (m ³ /h)	Delivery height (m)	Water pump power (kW)	System efficiency (%)
1200	0.000	0.129	1.190	1186	129.2	7.75	1.1	0.023	17.99
	0.005	0.124	1.169	1190	102.0	6.12	1.6	0.027	21.63
	0.010	0.122	1.159	1195	55.1	3.31	2.1	0.019	15.39
	0.012	0.116	1.120	1210	0.0	0.00	2.3	0.000	0.00

Energy consumption:

(Remark: test data marked in red among Condition1 Table and Condition 2 Table is regarded as “working point” and used for calculation and comparison)

Delivery the same amount water:

Motor rotation speed (rpm)	Input power (kW)	Flow rate of working point (m ³ /h)	Operation hours (h)	Total water delivery (m ³)	Power consumption (kW/h)	Energy saving (%)	Remark
2900	0.746	13.57	8.0	109	6.00	0.0%	Without controller
2200	0.363	9.55	11.4	109	4.10	30.9%	Controller mode, “SILENCE”
1700	0.217	8.17	13.3	109	2.90	51.7%	Controller mode, “SILENCE”
1200	0.124	6.12	17.7	109	2.20	63.1%	Controller mode, “WINTER”

Operation for the same hours:

Motor rotation speed (rpm)	Input power (kW)	Flow rate of working point (m ³ /h)	Operation hours (h)	Total water delivery (m ³)	Power consumption (kW/h)	Energy saving (%)	Remark
2900	0.746	13.57	8.0	109	6.00	0.0%	Without controller
2200	0.363	9.55	8.0	76	2.90	51.3%	Controller mode, “SILENCE”
1700	0.217	8.17	8.0	65	1.70	70.9%	Controller mode, “SILENCE”
1200	0.124	6.12	8.0	49	0.99	83.4%	Controller mode, “WINTER”

Multi-operation stages:

Motor rotation speed (rpm)	Input power (kW)	Flow rate of working point (m ³ /h)	Operation hours (h)	Total water delivery (m ³)	Power consumption (kW/h)	Energy saving (%)	Remark
2900	0.746	13.57	24.0	326	17.90	0.0%	Without controller
2900	0.737	13.24	1.0	160	3.87	78.4%	Controller mode, "BACKWASH"
1700	0.217	8.17	3.0				Controller mode, "SILENCE"
1200	0.124	6.12	20.0				Controller mode, "WINTER"

Test equipment list:

Description	Type
Power Meter	Weibo PF120
Pressure meter	HONGQI 0.4MPa
Flow rate meter	HY-A50
Rotation speed meter	VICTOR DM6236P

--End of test report--