

Collated and updated list of solar cooling installations in participating countries

Task Report 5.3.1

ITW

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1 Collated and updated list of solar cooling installations in participating countries

Solar thermal cooling is a young but growing market. Systems with different configurations facing a great variety of climatic conditions can be found all around the world. Despite the geographical distribution the number of solar thermal cooling installations is still several orders smaller than the number of cooling installations using electricity driven compression chillers. Hence, a lot of the up to date installed systems are prototype systems. But with the start of a market for solar thermal cooling installations a few manufacturers have entered the market with small series production. Normally each manufacturer concentrates on only one thermo-chemical process or technology in general used for cooling purpose.

For the development of requirements for durability and performance testing of such solar thermal cooling systems it is important to have an overview on the available technologies and their applications. Hence this document provides an ordered list of solar thermal cooling installations. This list makes no claim to be complete but it gives a broad overview on the installed technologies.

Within Task 38 - Solar Air Conditioning and Refrigeration of the Solar Heating and Cooling program (SHC) of the International Energy Agency (IEA) an overview has been carried out on thermally driven chillers and solar thermal technologies used in realized systems [1]. The aim of this overview was to collect information on existing solar heating and cooling systems in order to derive a first identification of proven design solutions in terms of selection of technologies and dimensioning in relationship with location, final use and size of the building.

The list of Task 38 was taken as a starting point. It included 303 solar thermal heating and cooling installations spread over the entire world (state of September 2010). In the project QAiST a survey on existing solar thermal cooling installations in the participating countries has been carried out. This was performed by distributing a questionnaire to owners and operators of solar thermal cooling systems. The questionnaire can be found in the annex. A detailed analysis of the outcome of the questionnaire is given in TR 5.3.2. The information gathered from this survey was used to expand the list of Task 38.

The list was expanded by 24 installations and information on 33 already listed installations was completed or updated. To indicate this in the list there are three colours of cell marking. New information data to the list from the QAiST survey is indicated in green, confirmed information in grey and updated or corrected information in red.

In the first column the installations included in the QAIst survey are marked by the number used within the QAIst database consisting of a country code of two letters and a consecutive numbering for each country. All other columns follow the initial list of Task 38. The scale type differs between L and S which stands for large and small installations. Small installations have a cooling capacity of up to 20 kW. The columns “Abs”, “Ads”, “DECs” and “DECI” categorize the used sorption process and the nominal thermal cooling capacity of the installations. Closed cycles using absorption or adsorption are indicated by “Abs” or “Ads”, whereas desiccant evaporative cooling systems with open cycle are indicated as “DECs” if using a solid sorption material for example in a sorption rotor or as “DECI” if using a liquid sorption material. The cooling capacity of DEC systems is usually indicated by the nominal volume flow rate given in m³/h. 200 m³/h is approximately 1 kW of cooling capacity.

QAiST No.	No	Country	Country label	Continent	Name of Owner Company/Project	City	Application type	Application label	Year of completion	Scale type	Abs [kW]	Ads [kW]	DECs [m ² /h]	DECI [m ² /h]	Manufacturer
	1	Armenia	Armenia	Asia	DESODEC	Yerivan	University	School/University/Education centre		L			8,500		
	2	Australia	Australia	Australia	CSIRO Energy Centre	Newcastle	Office building	Office	2008	S	17.5				Yazaki (Water/LiBr)
	3	Australia	Australia	Australia	Milk Factory	Wyong	Industry	Industry	2009	S		10			InvenSor (Water/Zeolith)
	4	Australia	Australia	Australia	Ipswich Hospital	Ipswich	Hospital	Hospital		L	300				
	5	Austria	Austria	Europe	Weinbaubetrieb Peitler	Leutschach	Wine cellar	Other Service	2003	S	10				Pink (Ammonia/Water)
	6	Austria	Austria	Europe	Fa. SOLID	Graz	Office building	Office	2003	S	2				Kunze (Ammonia/Water)
AT03	7	Austria	Austria	Europe	Fa. SOLution	Sattledt	Office building	Office	2005	S	15				EAW (Water/LiBr)
AT04	8	Austria	Austria	Europe	Privathaus Jungreithmayr	Sattledt	Residential building	Residential	2007	S		5.5			SorTech (Water/Silicagel)
AT01	9	Austria	Austria	Europe	Fa. Bachler	Gröbming	Training centre	Other Service	2007	S	9				Pink (Ammonia/Water)
	10	Austria	Austria	Europe	Fa. Manschein	Gaweinstal	Office and industrial building	Industry	2008	S		7.5			SorTech (Water/Silicagel)
AT07	11	Austria	Austria	Europe	Fa. Kreuzroither	Schörfling	Office and industrial building	Industry	2008	S		15			SorTech (Water/Silicagel)
AT06	12	Austria	Austria	Europe	Fa. SOLID	Graz	Office building	Office	2008	S	17.5				Yazaki (Water/LiBr)
AT08	13	Austria	Austria	Europe	Municipality of Vienna Section 34	Vienna	Office building	Office	2009	S		7.5			SorTech (Water/Silicagel)
AT02	14	Austria	Austria	Europe	Oköpark	Hartberg	Office	Office	2000	L			6,000		Munters (Water/Silicagel)
	15	Austria	Austria	Europe	BH Rohrbach	Rohrbach	Office	Office	2007	L	30				
	16	Austria	Austria	Europe	General Solar	St. Veit a.d. Glan	Office	Office		L	35				
	17	Austria	Austria	Europe	Ferrgas OÖ	Haid	Office	Office		L	70				
	18	Austria	Austria	Europe	Gasokol	Saxen	Office	Office		L	30				
AT05	19	Austria	Austria	Europe	Rathaus Gleisdorf	Gleisdorf	Town hall and offices	Office	2008	L	35		6,180		Yazaki (Water/LiBr)/Klingenburg (Water/Silicagel)
	20	Austria	Austria	Europe	SOLution Solartechnik, new site	Sattledt	Office	Office		L		60			
	21	Austria	Austria	Europe	Fa. Paar	Graz	Office	Office		L	105				
	22	Austria	Austria	Europe	Raiffeisenbank Trofaiach	Trofaiach	Office (bank)	Office		L	70				
	23	Austria	Austria	Europe	Feistritzwerke Gleisdorf	Gleisdorf	Office	Office		L	24				
	24	Austria	Austria	Europe	Sunmaster	Eberstälzell	Office	Office		L	80				
	25	Austria	Austria	Europe	ENERGYbase	Wien	Office	Office	2008	L			2x8,000		
	26	Belgium	Other EU Countries	Europe	Renewable Energy House	Brussels	Office	Office		L	35				
	27	China	China	Asia	Public building	Hong Kong	Public building	Other Services	2007	S	4.5				Rotartica (Water/LiBr)
	28	China	China	Asia	Residential building	Beijing	Residential building	Residential	2008	S		7.5			SorTech (Water/Silicagel)
	29	China	China	Asia	Solar Energy Hall	Rushan (Shandong)	Exhibition hall	Other Services		L	176				
	30	China	China	Asia		Jiangmen (Canton)	Multi-use	Other Services		L	100				
	31	China	China	Asia	Tianpu	Beijing	Office	Office		L	200				
	32	China	China	Asia	Olympic Village Logistic Center	Qingdao	Logistic/Office centre	Office		L	500				
	33	Denmark	Other EU Countries	Europe	Skive municipal administration building	Skive	Office	Office		L	70				
	34	Egypt	Egypt	Africa	Hostel	Sharm el Sheikh	Hostel	Hotel	2008	S	13.5				Rotartica (Water/LiBr)
	35	France	France	Europe	Laboratory	Lannion	Laboratory set up	Laboratory	2006	S	4.5				Rotartica (Water/LiBr)
	36	France	France	Europe	Laboratory	Moret sur Loing	Laboratory set up	Laboratory	2007	S	4.5				Rotartica (Water/LiBr)
FR03	37	France	France	Europe	Résidence du Lac / SIEL	Maclas	Residential building	Residential	2007	S	10				Sonnenklima (Water/LiBr)
FR02	38	France	France	Europe	SOLACLIM	Perpignan	Laboratory set up	Laboratory	2008	S		7.5			SorTech (Water/Silicagel)
FR04	39	France	France	Europe	CSTB	Sophia Antipolis	Office and laboratory	Laboratory		L	35				Yazaki (Water/LiBr)
	40	France	France	Europe	DIREN	Basse Terre	Office	Office	2003	L	35				
FR01	41	France	France	Europe	Cave GICB	Banyuls	Wine cellar	Other Services	1991	L	52				Yazaki (Water/LiBr)
	42	France	France	Europe	Usine Givaudan	Argenteuil	Office	Office		L	105				
	43	France	France	Europe	Usine GALDERMA	Sophia Antipolis	Office	Office	2002	L	210				
	44	France	France	Europe	TECHNIFROID	Le Port	Industry	Industry		L	35				
	45	France	France	Europe	Kristal - Ile de La Réunion	Saint Denis Réunion	Office	Office	2006	L	35				
	46	France	France	Europe	RAFSOL	Saint Pierre (Réunion)	University	School/University/Education centre	2008	L	30				
	47	France	France	Europe	Cultural center	Sainte Maxime	Public building	Other Services		L		35			
	48	France	France	Europe	CRES	Vignola (Corse)	Office	Office		L		35			
	49	France	France	Europe	High Quality Environmental labelled high school	Port-Louis (Guadeloupe)	School	School/University/Education centre		L		175			
	50	France	France	Europe	ISTAB	Talence	Laboratories	Laboratory		L		35			

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	51	Germany	Germany	Europe	FH Ingolstadt	Ingolstadt	Test plant	Laboratory	2004	S	15				EAW (Water/LiBr)
	52	Germany	Germany	Europe	WEGRA-Anlagenbau GmbH	Westenfeld	Office building	Office	2004	S	15				EAW (Water/LiBr)
	53	Germany	Germany	Europe	Schüco International KG	Bielefeld	Office building	Office	2005	S	15				EAW (Water/LiBr)
	54	Germany	Germany	Europe	Private company	Braunschweig	Offices	Office	2006	S	4.5				Rotarica (Water/LiBr)
	55	Germany	Germany	Europe	Conergy AG	Rangsdorf	Office building	Office	2006	S	15				EAW (Water/LiBr)
DE12	56	Germany	Germany	Europe	Fa. Solar Next	Rimsting	Office building	Office	2007	S	15				EAW (Water/LiBr)
	57	Germany	Germany	Europe	Sonnenalternativtechnik	Strukum	Office building / workshop	Office	2007	S	15				EAW (Water/LiBr)
	58	Germany	Germany	Europe	QS-Grimm GmbH	Gutach	Office / production rooms	Office	2007	S	15				EAW (Water/LiBr)
	59	Germany	Germany	Europe	ZAE Bayern	Garching	Laboratory set up	Laboratory	2007	S	10				Sonnenklima (Water/LiBr)
DE04	60	Germany	Germany	Europe	Fraunhofer ISE	Freiburg	Canteen	Other Services	2007	S	5.5				SorTech (Water/Silicagel)
	61	Germany	Germany	Europe	Citrin Solar	Moosburg	Office building	Office	2007	S	5.5				SorTech (Water/Silicagel)
	62	Germany	Germany	Europe	TKIZ GmbH	Barby	Office building	Office	2008	S	15				EAW (Water/LiBr)
	63	Germany	Germany	Europe	radiological practice	Berlin	Radiological practice	Other Services	2008	S	10				Sonnenklima (Water/LiBr)
	64	Germany	Germany	Europe	Residential building	Wiesloch	Residential building	Residential	2008	S	7.5				SorTech (Water/Silicagel)
	65	Germany	Germany	Europe	Office and apartment building	Bad Waldsee	Office and apartment building	Office	2008	S	7.5				SorTech (Water/Silicagel)
	66	Germany	Germany	Europe	Residential building	Alzenau	Residential building	Residential	2008	S	7.5				SorTech (Water/Silicagel)
	67	Germany	Germany	Europe	Fa. Schneider	Megesheim	Office building	Office	2008	S	5.5				SorTech (Water/Silicagel)
	68	Germany	Germany	Europe	Fa. Zink	Unterensingen	Office building	Office	2008	S	5.5				SorTech (Water/Silicagel)
	69	Germany	Germany	Europe	Solarzentrum	Wietow	Office building / showroom	Office	2009	S	15				EAW (Water/LiBr)
	70	Germany	Germany	Europe	Siemens Erlangen	Erlangen	Test plant	Laboratory	2009	S	15				EAW (Water/LiBr)
	71	Germany	Germany	Europe	University Stuttgart	Stuttgart	Laboratory set up	Laboratory	2009	S	10				ITW Uni Stuttgart (Ammonia/Water)
	72	Germany	Germany	Europe	Raiffeisenbank Miesbach	Miesbach	Bank	Office	2009	S	20				Pink (Ammonia/Water)
	73	Germany	Germany	Europe	Technologiezentrum Köthen	Köthen	Office building	Office		S	15				
	74	Germany	Germany	Europe	Wolfferts	Köln	Office	Office		L	70				
	75	Germany	Germany	Europe	Press and Information Centre of the Government	Berlin	Office	Office		L	44				
DE03	76	Germany	Germany	Europe	Ott & Spies	Langenau	Office	Office		L	35				Yazaki (Water/LiBr)
	77	Germany	Germany	Europe	Fraunhofer Umsicht	Oberhausen	Office & Laboratory	Office		L	58				
	78	Germany	Germany	Europe	Ministry for Traffic, Building and Housing	Berlin	Office	Office		L	70				
DE01	79	Germany	Germany	Europe	University hospital	Freiburg	Laboratory	Laboratory	1999	L	70				Nishyodo (Water/Silicagel)
	80	Germany	Germany	Europe	Stadtwerke	Remscheid	Office	Office		L	105				
	81	Germany	Germany	Europe	Zander	Stuttgart	Office	Office		L					
	82	Germany	Germany	Europe	Bautzener	Dresden	Office	Office		L	71				
	83	Germany	Germany	Europe	Götz	Würzburg	Office	Office		L	70				
	84	Germany	Germany	Europe	Landesamt für Umweltschutz	Augsburg	Office	Office		L	352				
	85	Germany	Germany	Europe	Malteser Krankenhaus	Kamenz	Hospital	Hospital		L	105				
DE02	86	Germany	Germany	Europe	IHK	Freiburg	Seminar rooms	Office		L		10.200			DehuTech (Water/Silicagel)
	87	Germany	Germany	Europe	Ecotec	Bremen	Office	Office		L	70	30 kW			
	88	Germany	Germany	Europe	Stadtwerke	Bückerburg	Office	Office		L		30 kW			
	89	Germany	Germany	Europe	Fa. Maier	Alt-Hengstett	Office	Office		L		108 kW			
	90	Germany	Germany	Europe	AUDI logistic center	Ingolstadt	Multipurpose	Other Services	2006	L		76 kW			
	91	Germany	Germany	Europe	Email-Fabrik	Amberg	Industry	Industry		L			75 kW		
	92	Germany	Germany	Europe	Paradigma	Karlsbad-Langensteinbach	Office	Office	2006	L	54				
	93	Germany	Germany	Europe	Federal Environmental Agency	Deressau	Office	Office		L		69			
DE11	94	Germany	Germany	Europe	FESTO technology center	Esslingen	Industry	Industry		L	1,050				Mayekawa (Water/Silicagel)
	95	Germany	Germany	Europe	Ritter Museum	Waldenbuch	Exhibition	Other Services		L	54				
	96	Germany	Germany	Europe	?	Bad Schandau	Office	Office		L	50				
DE06	97	Germany	Germany	Europe	IBA-AG	Fürth	Office	Office	2007	L	30				EAW (Water/LiBr)
	98	Germany	Germany	Europe	IT-school	Rodewisch	Classrooms	School/University/Education centre		L	32				
DE05	99	Germany	Germany	Europe	Solar Info Center (SIC)	Freiburg	Seminar rooms	Seminar rooms	2007					1,500	Menerga (Water/LiCl)
DE07	100	Germany	Germany	Europe	Technical College for Engineering	Butzbach	College building	College building	2008		23				Sonnenklima (Water/LiBr)

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DE08	101	Germany	Germany	Europe	ITW University of Stuttgart	Stuttgart	Auditorium	Auditorium	2011	S		9			InvenSor (Water/Zeolith)
DE09	102	Germany	Germany	Europe	Solera	Binsdorf	Office	Office	2010	S		10			InvenSor (Water/Zeolith)
DE10	103	Germany	Germany	Europe	BLS	Forchtenberg	Office	Office	2010	S		8			SorTech (Water/Silicagel)
	104	Greece	Greece	Europe	American college I	Athens	Office	Office		L	168				
GR04	105	Greece	Greece	Europe	Solar Lab Demokritos	Athens	Office	Office		L	35				Yazaki (Water/LiBr)
GR07	106	Greece	Greece	Europe	Rethymno Village hotel	Rethymno	Hotel	Hotel		L	105				SOLE S.A. (Water/LiBr)
GR06	107	Greece	Greece	Europe	Hotel Lentzakis Crete	Rethymno	Hotel	Hotel		L	105				SOLE S.A. (Water/LiBr)
GR01	108	Greece	Greece	Europe	Sol Energy company	Palaio Falio	Office	Office	2007	L	35				Yazaki (Water/LiBr)
GR05	109	Greece	Greece	Europe	Sarantis cosmetic factory	Viota	Industry	Industry		L		700			GBU (Water/Silicagel)
GR02	110	Greece	Greece	Europe		Lavrio	Public	Public	2007					1,100	Klingenburg (Water/LiCI)
GR03	111	Greece	Greece	Europe	High Combi-CRES	Athens	Office	Office		L	35				SOLE S.A. (Water/LiBr)
HU01	112	Hungary	Hungary	Europe	Tesco Super Market	Budapest	Public	Public		L	250				SOLE S.A. (Water/LiBr)
	113	Israel	Israel	Asia	Technion – Israel Institute of Technology	Haifa	Laboratory	Laboratory		S	new				
	114	Israel	Israel	Asia	Tel-Ashomer Hospital	Tel Hashomer	Hospital	Hospital		L	new				
	115	Italy	Italy	Europe	Private company	Arezzo	Private company	Office	2007	S	4.5				Rotartica (Water/LiBr)
	116	Italy	Italy	Europe	Private company	Perugia	Private company	Office	2007	S					Rotartica (Water/LiBr)
	117	Italy	Italy	Europe	Paradigma	Darzo	Office building	Office	2006	S	15				EAW (Water/LiBr)
IT02	118	Italy	Italy	Europe	ISSA	Milano	Office building	Office	2007	S	4.5				Rotartica (Water/LiBr)
	119	Italy	Italy	Europe	CRA-VIV	Pescia	Green house	Other Services	2008	S		7.5			SorTech (Water/Silicagel)
	120	Italy	Italy	Europe	Schüco International	Sarmeola	Office building	Office	2008	S	12				Pink (Ammonia/Water)
	121	Italy	Italy	Europe	Kindergarden Polimi	Milano	Kindergarten	School/University/Education centre	2009	S	15				EAW (Water/LiBr)
	122	Italy	Italy	Europe	Ebner Solartechnik	Eppan	Office building	Office	2009	S		8.5			SorTech (Water/Silicagel)
	123	Italy	Italy	Europe	University Cassino	Cassino	University	School/University/Education centre		BI	S	15			EAW (Water/LiBr)
	124	Italy	Italy	Europe	Company	Concorrezzo	Offices	Office	2008	S				80 kW	Menerga (Water/Silicagel)
	125	Italy	Italy	Europe	University Palermo	Palermo	Test plant	Laboratory	2008	S	17.5				Yazaki (Water/LiBr)
	126	Italy	Italy	Europe	AVIS	Bologna	Office	Office	2009	L	17.5				Yazaki (Water/LiBr)
	127	Italy	Italy	Europe	Baxter	Pergine	Office	Office		L	105				
	128	Italy	Italy	Europe	EURAC	Bolzano	Education centre	School/University/Education centre	2002	L	300				Thermax (Water/LiBr)
	129	Italy	Italy	Europe	Luigi Einauti	Bolzano	Education centre	School/University/Education centre		L	300				
	130	Italy	Italy	Europe	San Maurizio	Bolzano	Nurse training centre	School/University/Education centre		L	250				
	131	Italy	Italy	Europe	Fire Station Bolzano	Bolzano	Fire fighters headquarter	Other Services		L	175				
	132	Italy	Italy	Europe	Ecomensa	Turin	Office canteen	Office		L			15,000		
	133	Italy	Italy	Europe	Dongo's gym	Dongo (Co)	Gym	Other Services	2008	L	35				Yazaki (Water/LiBr)
	134	Italy	Italy	Europe	Como Municipality	Como	Offices	Office		L	480				
	135	Italy	Italy	Europe	Public Library	Como	Library	School/University/Education centre		L	280				
	136	Italy	Italy	Europe	METRO Cash & Carry	Roma	Wholesale, Offices and canteen	Office		L	700				
	137	Italy	Italy	Europe	DREAM	Palermo	Office and lab	Office	2007	L			1,250		
	138	Italy	Italy	Europe	Scuola media ecosostenibile "Pedagna"	Imola	School	School/University/Education centre		L	35				
	139	Italy	Italy	Europe	Fortec srl	Correggio	Industry	Industry		L	44				
	140	Italy	Italy	Europe	Pertusati	Pavia	Nursing home	Other Services	2009	L	70				Broadi (Water/LiBr)
	141	Italy	Italy	Europe	Santa Margherita	Pavia	Nursing home	Other Services	2009	L	70				Broadi (Water/LiBr)
	142	Italy	Italy	Europe	Polistudio AES	Riccione	Offices	Office	2007	L	35				
	143	Italy	Italy	Europe	Klobe headquarter	Bovolone (VR)	Offices	Office	2008	L				80 kW	Menerga (Water/Silicagel)
	144	Italy	Italy	Europe	Seminary	Vallo della Lucania (SA)	Canteen	Other Services	2005	L	35				Yazaki (Water/LiBr)
	145	Italy	Italy	Europe	ENEA	Casaccia - Roma	Offices	Office		BI	L	70			Yazaki (Water/LiBr)
IT01	146	Italy	Italy	Europe	Ebner Solartechnik	Appiano	Commercial	Commercial		S	15				EAW (Water/LiBr)
IT03	147	Italy	Italy	Europe	Business Centre	Pergine	Office	Office		L	70				LG (Water/LiBr)
IT04	148	Italy	Italy	Europe	Asilo Politecnico	Milano	School	School	2010	S		8			
	149	Japan	Japan	Asia	Toyama Geriatric Hospital	Toyama	Hospital	Hospital		L	?				
	150	Japan	Japan	Asia	Yatsushiro National College of Technology	Yatsushiro	Research centre	School/University/Education centre		L	?				

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	151	Kosovo	Other EU Countries	Europe	Bureaux Union Européenne	Pristina	Office	Office		L	90				
	152	Lichtenstein	Other EU Countries	Europe	Baugemeinschaft Rietli	Schaan	Residential building	Other Services	2008	S	15				EAW (Water/LiBr)
	153	Malta	Other EU Countries	Europe	Retirement home Kalkhara	Kalkhara	Retirement home	Hospital	2008	S	10				Pink (Ammonia/Water)
	154	Malta	Other EU Countries	Europe	Headquater of Eco Group	Kordin	Office building	Office	2009	S	10				Pink (Ammonia/Water)
	155	Mexico	Mexico	Central America	Gütermann Polygal	Jiutepec	Sewing threads and yarns factory	Other Services		L		290			
	156	Netherlands	Other EU Countries	Europe	Verhulst	Waalwijk	Industrial	Industry		L			22 kW		
	157	Netherlands	Other EU Countries	Europe	régie électrique EZK	Heemstede	Office	Office		L			46.2 kW		
	158	Portugal	Portugal	Europe	Private company	Lisbon	Private company	Office	2007	S	4.5				Rotartica (Water/LiBr)
	159	Portugal	Portugal	Europe	Private company	Chegancas	Private company	Office	2008	S	4.5				Rotartica (Water/LiBr)
	160	Portugal	Portugal	Europe		Lisbon	Office building	Office	2009	S	8				AO SOL (Ammonia/Water)
PT01	161	Portugal	Portugal	Europe	INETI	Lisbon	Office	Office	1999	L				5,000	MODULAIR AG SACHSEN (Water/LiCl)
	162	Portugal	Portugal	Europe	ATECNIC	Sintra	Office	Office		L			57.6 kW		
	163	Portugal	Portugal	Europe	Centrale contrôle trafic autoroutier	Sintra	Office	Office		L	70				
PT02	164	Portugal	Portugal	Europe	Vajra Solar thermal design and distribution company	Algarve	Office	Office	2005	L	36				Yazaki (Water/LiBr)
	165	Portugal	Portugal	Europe	CGD Caixa Geral de Depósitos	Lisbon	Office (bank)	Office		L	545				
	166	Singapore	Singapore	Asia		Singapore	Office	Office		L				350 kW	
	167	South Africa	South Africa	Africa	Netcare Moot hospital	Pretoria	Hospital	Hospital	BI	L	35				
	168	Spain	Spain	Europe	Private House	Barcelona	Residential building	Residential	2006	S	4.5				Rotartica (Water/LiBr)
ES09	169	Spain	Spain	Europe	Sports Centre	Zaragoza	Sports Centre	Other Services	2006	S	4.5				Rotartica (Water/LiBr)
	170	Spain	Spain	Europe	Private Company	Sarriguren-Navarra	Offices	Office	2006	S	4.5				Rotartica (Water/LiBr)
	171	Spain	Spain	Europe	Public Building	Puerto Lumbreras-Murcia	Sport Centre	Other Services	2006	S	4.5				Rotartica (Water/LiBr)
	172	Spain	Spain	Europe	Private Company	Sevilla	Offices	Office	2006	S	4.5				Rotartica (Water/LiBr)
	173	Spain	Spain	Europe	Private House	Madrid	Residential building	Residential	2006	S	4.5				Rotartica (Water/LiBr)
	174	Spain	Spain	Europe	Private Company (Food)	Noreña-Asturias	Private Company (Food)	Other Services	2006	S	4.5				Rotartica (Water/LiBr)
	175	Spain	Spain	Europe	Private House	Bilbao	Residential building	Residential	2006	S	4.5				Rotartica (Water/LiBr)
	176	Spain	Spain	Europe	School	Segovia	School	School/University/Education centre	2006	S	4.5				Rotartica (Water/LiBr)
	177	Spain	Spain	Europe	School	Santurtzi	School	School/University/Education centre	2006	S	4.5				Rotartica (Water/LiBr)
	178	Spain	Spain	Europe	Private hospital	Tenerife	Hospital	Hospital	2006	S	4.5				Rotartica (Water/LiBr)
	179	Spain	Spain	Europe	Retirement home	Las Palmas-Canarias	Retirement home	Hospital	2006	S	4.5				Rotartica (Water/LiBr)
	180	Spain	Spain	Europe	Private Company	Sevilla	Offices	Office	2006	S	9				Rotartica (Water/LiBr)
	181	Spain	Spain	Europe	Private Company	Basauri-Bizkaia	Offices	Office	2006	S	9				Rotartica (Water/LiBr)
	182	Spain	Spain	Europe	Public Building	Errenteria-Gipuzkoa	Public Building	Other Services	2006	S	4.5				Rotartica (Water/LiBr)
	183	Spain	Spain	Europe	Private Company	Basauri-Bizkaia	Offices	Office	2006	S	13.5				Rotartica (Water/LiBr)
	184	Spain	Spain	Europe	Training Centre	Guadalajara	Training Centre	Other Services	2006	S	4.5				Rotartica (Water/LiBr)
	185	Spain	Spain	Europe	Trade Exhibition Center	Gijón	Trade Exhibition Centre	Other Services	2006	S	4.5				Rotartica (Water/LiBr)
	186	Spain	Spain	Europe	Experimental Installation	Arganda del Rey-Madrid	Experimental Installation	Laboratory	2006	S	4.5				Rotartica (Water/LiBr)
	187	Spain	Spain	Europe	Private House	Villajoyosa-Alicante	Residential building	Residential	2007	S	4.5				Rotartica (Water/LiBr)
	188	Spain	Spain	Europe	School	Molina de Segura	School	School/University/Education centre	2007	S	4.5				Rotartica (Water/LiBr)
	189	Spain	Spain	Europe	Private House	Madrid	Residential building	Residential	2007	S	4.5				Rotartica (Water/LiBr)
	190	Spain	Spain	Europe	Private House	Olivares-Sevilla	Residential building	Residential	2007	S	4.5				Rotartica (Water/LiBr)
	191	Spain	Spain	Europe	Private Company (Food)	Estepa-Sevilla	Private Company (Food)	Other Services	2007	S	4.5				Rotartica (Water/LiBr)
	192	Spain	Spain	Europe	Private House	Brunete-Madrid	Residential building	Residential	2007	S	4.5				Rotartica (Water/LiBr)
	193	Spain	Spain	Europe	Private House	Zuia-Araba	Residential building	Residential	2007	S	4.5				Rotartica (Water/LiBr)
	194	Spain	Spain	Europe	University	Yecla-Murcia	Common Zones	Other Services	2007	S	4.5				Rotartica (Water/LiBr)
	195	Spain	Spain	Europe	Camping	Aznalcazar-Sevilla	Camping	Other Services	2007	S	4.5				Rotartica (Water/LiBr)
	196	Spain	Spain	Europe	Private Company	Gazteiz-Araba	Show Room	Other Services	2007	S	4.5				Rotartica (Water/LiBr)
	197	Spain	Spain	Europe	Technological Research Centre	Miñano-Araba	Technological Research Centre	School/University/Education centre	2007	S	4.5				Rotartica (Water/LiBr)
	198	Spain	Spain	Europe	University	Santander	University	School/University/Education centre	2007	S	4.5				Rotartica (Water/LiBr)
	199	Spain	Spain	Europe	Office	Sanlucar Lamayor-Sevilla	Office	Office	2007	S	4.5				Rotartica (Water/LiBr)
	200	Spain	Spain	Europe	Museum	Granada	Museum	Other Services	2007	S	4.5				Rotartica (Water/LiBr)

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	201	Spain	Spain	Europe	Public Building	La Moncloa-Madrid	Public Building	Other Services	2007	S	18				Rotartica (Water/LiBr)
	202	Spain	Spain	Europe	Private House	Puerto Santamaría-Cádiz	Residential building	Residential	2007	S	4.5				Rotartica (Water/LiBr)
	203	Spain	Spain	Europe	University Rooms	Univ. Cartagena	University Rooms	School/University/Education centre	2007	S	4.5				Rotartica (Water/LiBr)
	204	Spain	Spain	Europe	Tourism Office	Matalascañas-Huelva	Tourism Office	Office	2007	S	4.5				Rotartica (Water/LiBr)
	205	Spain	Spain	Europe	Public Building	Molina de Segura-Murcia	Public Building	Other Services	2007	S	4.5				Rotartica (Water/LiBr)
	206	Spain	Spain	Europe	Sports Centre	La Carlota-Córdoba	Sports Centre	Other Services	2007	S	4.5				Rotartica (Water/LiBr)
	207	Spain	Spain	Europe	Private company	Fuente Alamo	Private company	Other Services	2007	S	9				Rotartica (Water/LiBr)
	208	Spain	Spain	Europe	Public Building (Room)	Tivissa-Tarragona	Public Building (Room)	Other Services	2007	S	9				Rotartica (Water/LiBr)
	209	Spain	Spain	Europe	Public Building	León	Public Building	Other Services	2007	S	4.5				Rotartica (Water/LiBr)
	210	Spain	Spain	Europe	University Laboratory	Tarragona	University Laboratory	Laboratory	2007	S	4.5				Rotartica (Water/LiBr)
	211	Spain	Spain	Europe	Domolab	Miñao	Showroom	Other Services	2008	S	4.5				Rotartica (Water/LiBr)
	212	Spain	Spain	Europe	Private Company (Animals)	La Muela-Zaragoza	Private Company (Animals)	Office	2008	S	4.5				Rotartica (Water/LiBr)
	213	Spain	Spain	Europe	Private Company	Espinardo-Murcia	Private Company	Office	2008	S	4.5				Rotartica (Water/LiBr)
	214	Spain	Spain	Europe	Biodiesel Installation	Kaparroso-Navarra	Biodiesel Installation	Other Services	2008	S	9				Rotartica (Water/LiBr)
	215	Spain	Spain	Europe	Golf (shop and bar)	La Manga-Murcia	Golf (shop and bar)	Other Services	2008	S	4.5				Rotartica (Water/LiBr)
	216	Spain	Spain	Europe	Retirement home	Terrassa-Barcelona	Retirement home	Hospital	2008	S	9				Rotartica (Water/LiBr)
	217	Spain	Spain	Europe	Private House	Girona	Residential building	Residential	2008	S	18				Rotartica (Water/LiBr)
	218	Spain	Spain	Europe	Multi Family House	Laguna de Duero-Valladolid	Multi Family House	Residential	2008	S	4.5				Rotartica (Water/LiBr)
	219	Spain	Spain	Europe	Hotel	Lanzarote	Hotel	Hotel	2008	S	4.5				Rotartica (Water/LiBr)
	220	Spain	Spain	Europe	Public Building	Bullas-Murcia	Public Building	Other Services	2008	S	4.5				Rotartica (Water/LiBr)
	221	Spain	Spain	Europe	Public Building	San José de la Vega-Murcia	Public Building	Other Services	2008	S	4.5				Rotartica (Water/LiBr)
	222	Spain	Spain	Europe	Public Building	Alcantarilla-Murcia	Public Building	Other Services	2008	S	4.5				Rotartica (Water/LiBr)
	223	Spain	Spain	Europe	School	Portugalete	School	School/University/Education centre	2008	S	4.5				Rotartica (Water/LiBr)
	224	Spain	Spain	Europe	Private Company (Food)	Noreña-Asturias	Private Company (Food)	Office	2008	S	4.5				Rotartica (Water/LiBr)
	225	Spain	Spain	Europe	Private House	Brunete-Madrid	Residential building	Residential	2008	S	4.5				Rotartica (Water/LiBr)
	226	Spain	Spain	Europe	Experimental Installation	Arganda del Rey-Madrid	Experimental Installation	Laboratory	2008	S	4.5				Rotartica (Water/LiBr)
	227	Spain	Spain	Europe	University	Jaén	University	School/University/Education centre	2008	S	4.5				Rotartica (Water/LiBr)
	228	Spain	Spain	Europe	National Institute of Airospacial Techniques INTA	Huelva	Laboratory set up	Laboratory		S	10				
	229	Spain	Spain	Europe	University of Zaragoza	Zaragoza	University	School/University/Education centre		S	4.5				
	230	Spain	Spain	Europe	Office	Narón	Office	Office		S	20				
ES03	231	Spain	Spain	Europe	House	Bilbao	House	Residential		S	10				ClimateWell (Water/LiBr)
	232	Spain	Spain	Europe	House	Toledo	House	Residential		S	10				
	233	Spain	Spain	Europe	Office	Valencia	Office	Office		S	10				
	234	Spain	Spain	Europe	House	Valencia	House	Residential		S	10				
	235	Spain	Spain	Europe	Office	Madrid	Office	Office		S	10				
	236	Spain	Spain	Europe	Office	Madrid	Office	Office		S	40				
	237	Spain	Spain	Europe	Office	Almería	Office	Office		S	40				
	238	Spain	Spain	Europe	House	Granada	House	Residential		S	10				
	239	Spain	Spain	Europe	House/Office	Madrid	House/Office	Residential		S	10				
	240	Spain	Spain	Europe	Office	Barcelona	Office	Office		S	10				
	241	Spain	Spain	Europe	House	Ciudad Real	House	Residential		S	10				
	242	Spain	Spain	Europe	House	Torre Laguna	House	Residential		S	10				
	243	Spain	Spain	Europe	House	Chiclana	House	Residential		S	10				
	244	Spain	Spain	Europe	House	Guadalajara	House	Residential		S	10				
	245	Spain	Spain	Europe	House	Madrid	House	Residential		S	40				
	246	Spain	Spain	Europe	Test station	Gijón	Test station	Laboratory		S	10				
	247	Spain	Spain	Europe	Office	Valladolid	Office	Office		S	10				
	248	Spain	Spain	Europe	House	Ibiza	House	Residential		S	10				
	249	Spain	Spain	Europe	Office	Asturias	Office	Office		S	50				
	250	Spain	Spain	Europe	Office	Castellón	Office	Office		S					

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	251	Spain	Spain	Europe	House	Sitges	House	Residential		S					
	252	Spain	Spain	Europe	Gym	Murcia	Gym	Other Services		S	10				
	253	Spain	Spain	Europe	House	Granada	House	Residential		S	10				
	254	Spain	Spain	Europe	Office	Sevilla	Office	Office		S	120				
	255	Spain	Spain	Europe	Oficina	Asturias	Office	Industry		S	10				
	256	Spain	Spain	Europe	House	Bilbao	House	Residential		S	10				
	257	Spain	Spain	Europe	Residencia	Madrid	Residential building	Residential		S	20				
	258	Spain	Spain	Europe	House	Algeciras	House	Residential		S	20				
	259	Spain	Spain	Europe	House	Valencia	House	Residential		S	10				
	260	Spain	Spain	Europe	Office	Madrid	Office	Office		S	10				
	261	Spain	Spain	Europe	Hotel	Jerez de la Frontera	Hotel	Hotel		S	20				
	262	Spain	Spain	Europe	Office	Soria	Office	Office		S					
	263	Spain	Spain	Europe	House	Valencia	House	Residential		S	10				
	264	Spain	Spain	Europe	House	Barcelona	House	Residential		S	20				
	265	Spain	Spain	Europe	House	Barcelona	House	Residential		S	10				
	266	Spain	Spain	Europe	Office	Leganes	Office	Office		S	10				
	267	Spain	Spain	Europe	House	Manresa	House	Residential		S					
	268	Spain	Spain	Europe	House	Torrelodones	House	Residential		S	20				
	268	Spain	Spain	Europe	University of Zaragoza	Zaragoza	Gymnasium	School/University/Education centre	2006	S	new				
	270	Spain	Spain	Europe	Office	Leon	Office	Office		S					
	271	Spain	Spain	Europe	Social & Cultural Centre Clara Campoamor	Barakaldo	Auditorium	Other Services		L	229				
	272	Spain	Spain	Europe	Education Department Regional Government	Toledo	Office	Office		L	252				
	273	Spain	Spain	Europe	Fabrica del Sol Building	Barcelona	Office	Office		L	105				
	274	Spain	Spain	Europe	Fundacion Metropoli Building	Madrid	Office	Office		L	105				
	275	Spain	Spain	Europe	Daquiz y Velarde Sport Centre	Madrid	Sport centre	Other Services		L	170				
ES10	276	Spain	Spain	Europe	Inditex head Offices	Arteixo	Office	Office		L	170				Carrier (Water/LiBr)
	277	Spain	Spain	Europe	Maison de retraite	Fustinana	Retired people house	Hospital		L	105				
	278	Spain	Spain	Europe	University Rovira i Virgili CREVER	Tarragone	Office	Office		L	35				
	279	Spain	Spain	Europe	Viessmann Head Offices	Madrid	Office	Office		L	105				
	280	Spain	Spain	Europe	Belroy palace Hotel	Benidorm	Hotel	Hotel		L	125				
	281	Spain	Spain	Europe	University of Sevilla	Seville	Laboratory	Laboratory		L	35				
	282	Spain	Spain	Europe	University of Carlos III	Madrid	Laboratory	Laboratory		L	35				
	283	Spain	Spain	Europe	Laia hotel	Derio	Hotel	Hotel		L	105				
ES02	284	Spain	Spain	Europe	CARTIF I, Boecillo Technology Park	Valladolid	Office	Office	2002	L	35				Yazaki (Water/LiBr)
	285	Spain	Spain	Europe	Siemens Controlmatic	Cornelia del Vallès	Office	Office		L	105				
	286	Spain	Spain	Europe	FONTEDOSOEI	Oso	Industry	Industry		L	105				
	287	Spain	Spain	Europe	Stella-Feuga	Santiago de Compostela	Office	Office		L	115				
ES01	288	Spain	Spain	Europe	Pompeu i Fabra Library	Mataro	Library	School/University/Education centre	2002	L			12,000		Seibu Giken (Water/Silicagel)
	289	Spain	Spain	Europe	Gamesa Solar	Tarragone	Office	Office		L	35				
	290	Spain	Spain	Europe	Cener Offices	Pamplona	Office	Office		L	350				
	291	Spain	Spain	Europe	TRASLUZ	Madrid	Office	Office		L	390				
	292	Spain	Spain	Europe	Isofoton Offices	Málaga	Office	Office		L	35				
	293	Spain	Spain	Europe	Germany School	Barcelona	School	School/University/Education centre		L	20				
	294	Spain	Spain	Europe	Peracamps-Public Health Agency	Barcelona	Laboratories	Laboratory		L	35				
ES04	295	Spain	Spain	Europe	Agencia de la Salud Publica	Barcelona	Laboratory	Laboratory	2008	L	35				Yazaki (Water/LiBr)
ES05	296	Spain	Spain	Europe	Altamarena Hotel	Morro Jable - Fuerteventura	Hotel	Hotel		L	70				Thermax (Water/LiBr)
ES06	297	Spain	Spain	Europe	Santa Lucia	Santa Lucia	Office	Office		L	35				Yazaki (Water/LiBr)
ES07	298	Spain	Spain	Europe	IFA Catarina Hotel	San Bartolome de Tirajana	Hotel	Hotel		L	70				Yazaki (Water/LiBr)
ES08	299	Spain	Spain	Europe	IFA Continental Hotel	San Bartolome de Tirajana	Hotel	Hotel		L	176				Yazaki (Water/LiBr)
ES11	300	Spain	Spain	Europe	Casa campo en Arges	Arges	Residential	Residential		S	10				

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ES12	301	Spain	Spain	Europe	Fundacion Barredo	Mieres del Camino	Office	Office		L	75				
ES13	302	Spain	Spain	Europe		Madrid	Office	Office		L	60				
ES14	303	Spain	Spain	Europe	CEDER	Lubia-Soria	Office	Office		L	75				
ES15	304	Spain	Spain	Europe	Plataforma Solar de Almeria	Tabernes	Office	Office		L	60				
ES16	305	Spain	Spain	Europe		Getxo	Residential	Residential		S	10				
ES17	306	Spain	Spain	Europe	Simelec	San Andres del Rabanedo	Office	Office		S	10				
SW01	307	Sweden	Sweden	Europe	Ssolar		Commercial	Commercial							Munter (Water/Lithium chloride)
CH01	308	Switzerland	Other EU Countries	Europe	Weingut Schloss Salenegg	Mainfeld	Wine cellar	Other Services	2005	S	15				EAW (Water/LiBr)
	309	Switzerland	Other EU Countries	Europe	Bank Pictet & Cie	Gineve	Offices	Office		L	210				
	310	Syria	Syria	Asia	Private House	Damascus	Residential building	Residential	2008	S	9				Rotartica (Water/LiBr)
	311	Sudan	Sudan	Africa	Emergency	Khartoum	Hospital	Hospital	2006	L	1230				Ebara (Water/LiBr)
	312	Turkey	Other EU Countries	Europe	Metro Antalya	Antalya	Supermarket	Other Services		L	233				
	313	Turkey	Other EU Countries	Europe	Iberotel Sarigerme Park	Dalaman	Hotel	Hotel		L	140				
	314	United Arab Emirates	UAE	Asia	Private house	Ras Al Khaimah	Residential building	Residential	2008	S	4.5				Rotartica (Water/LiBr)
	315	United Kingdom	Other EU Countries	Europe	University	Cardif	University	School/University/Education centre	2007	S	4.5				Rotartica (Water/LiBr)
	316	USA	USA	North America	Private house	Cincinnati	Residential building	Residential	2007	S	4.5				Rotartica (Water/LiBr)
	317	USA	USA	North America	Bergquam Energy	Sacramento, CA	Home	Residential		S					
	318	USA	USA	North America	Desert Outdoor Center	Phoenix (Arizona)	Laboratory	Laboratory		L	70				
	319	USA	USA	North America	SRP (Salt River Project)	Phoenix, Arizona	?	Other Services		L					
	320	USA	USA	North America	UNM (University of New Mexico)	Albuquerque, NM	Offices	Office		L	70				
	321	USA	USA	North America	Audubon Nature Center	Los Angeles, CA	Conference rooms	Other Services		L	35				
	322	USA	USA	North America	Bergquam Energy	Sacramento, CA	Commercial building	Other Services		L	70				
	323	USA	USA	North America	IST	Ft. Huachuca, AZ	?	Other Services		L					
	324	USA	USA	North America	NASA	Kennedy Space Center, FL	?	Other Services		L					
	325	USA	USA	North America	Heliodynamics	Albuquerque, NM	Airport car rental centre	Other Services		L					
	326	USA	USA	North America	Steinway	Long Island City, New York	Industry	Industry		L	X				
	327	Vatican	Other EU Countries	Europe		Vatican	Canteen & Laboratory	Laboratory	BI	L	105				Yazaki (Water/LiBr)

2 References

- [1] W. Sparber, A. Napolitano, P. Melograno: Overview on worldwide installed solar cooling systems. 2nd International Conference Solar Air Conditioning, Tarragona – Spain, October 2007