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Interstaatliche Hochschule für Technik Buchs

WPZ
Wärmepumpen-Testzentrum

Prüfresultate Sole/Wasser- und Wasser/Wasser-Wärmepumpen basierend auf der EN 14511:2011

Test results of brine to water heat pumps and water to water heat pumps based on EN 14511:2011

Auftraggeber Customer	**Gerät** Type	Prüfnummer Test number	Produktart Product type	Kältemittel Refrigerant	Kältemittelmenge [kg] Capacity of refrigerant	**Prüfbedingungen Sole-Wasser** Test conditions brine to water										**Prüfbedingungen Wasser-Wasser** Test conditions water to water							
						Volumenstromeinstellung Volume flow adjustment	V_{35}			V_{45}		V_{55}				Volumenstromeinstellung Volume flow adjustment	V_{35}			V_{45}		V_{55}		
							B5 / W35	**B0 / W35 - 30**	**B-5 / W35**	**B5 / W45**	**B0 / W45 - 40**	**B5 / W55**	**B0 / W55 - 47**	**B-5 / W55**	Volumenstrom [m³/h] Volume flow	Schallleistungspegel innen [dB(A)] Sound power level indoor	**W15 / W35**	**W10 / W35 - 30**	**W15 / W45**	**W10 / W45 - 40**	**W15 / W55**	**W10 / W55 - 47**	Volumenstrom [m³/h] Volume flow
Folgende Produkte werden seit dem aktuellen WPZ-Bulletin 01-2013 neu aufgeführt:						*Erset S.a.r.l, PCO 26, 339-13-20*											*Erset S.a.r.l, PCO 26, 171-13-12*							
The following products are newly listed since the latest WPZ-Bulletin 01-2013:						*Erset S.a.r.l, PCO 75, 340-13-21*											*Erset S.a.r.l, PCO 75, 172-13-13*							
						Hoval Aktiengesellschaft, ThermaliaH twin (35), 330-13-11											*Hoval Aktiengesellschaft, ThermaliaH twin (35), 167-13-08*							
						Hoval Aktiengesellschaft, Thermalia twin (35), 319-12-18											*Hoval Aktiengesellschaft, Thermalia twin (35), 148-13-02*							
						Kermi GmbH, x-change WPS 10, 314-12-13											*Sapac SA, PCO 26, 171-13-12*							
						Sapac SA, PCO 26, 339-13-20											*Sapac SA, PCO 75, 172-13-13*							
						Sapac SA, PCO 75, 340-13-21											*Striega-Therm AG, SWU 8, 163-13-04*							
						Striega-Therm AG, SWU 8, 322-13-03											*Striega-Therm AG, SWU 14, 164-13-05*							
						Striega-Therm AG, SWU 14, 323-13-04											*Viessmann (Schweiz) AG, E-Natura 350-G 68kW WWH352.A68, 168-13-09*							
						Viessmann (Schweiz) AG, E-Natura 350-G 54kW BWH352.A54, 333-13-14																		
						Viessmann Wärmepumpen GmbH, Vitocal 300-G BW 301.A45, 328-13-09											*Viessmann Wärmepumpen GmbH, Vitocal 300-G BW 301.A45, 166-13-07*							
BARTL Wärmepumpen	ECO 10 S	321-13-02	S	R407C	8.2	Heizleistung / Heat. cap. [kW]	29.2	25.3	21.9	27.6	24.0	26.0	23.0	19.9	4.39								
Wörthstrasse 13/1						El. Leistung / Input power [kW]	5.7	5.7	5.6	6.9	6.9	8.2	8.2	8.2	4.16	**63**							
D - 89077 Ulm						**COP [-]**	**5.1**	**4.5**	**3.9**	**4.0**	**3.5**	**3.2**	**2.8**	**2.4**	2.52	B0 / W60							
CTC Giersch AG	MSW 8	312-12-11	S	R407C	2.4	Heizleistung / Heat. cap. [kW]	9.1	8.0	6.9	8.7	7.6	8.5	7.4	6.4	1.38		Heizleistung / Heat. cap. [kW]	12.6	10.9	11.7	10.1	11.4	9.8	1.89
Bahnhofstrasse 60	*MWW 8*	*160-12-07*	*S*	*R407C*	*2.4*	El. Leistung / Input power [kW]	1.8	1.8	1.7	2.2	2.1	2.5	2.5	2.4	1.32	**49**	El. Leistung / Input power [kW]	2.0	1.9	2.3	2.3	2.7	2.7	1.76
CH - 8112 Otelfingen						**COP [-]**	**5.1**	**4.5**	**4.0**	**4.0**	**3.6**	**3.3**	**3.0**	**2.6**	0.81	B0 / W60	**COP [-]**	**6.3**	**5.7**	**5.0**	**4.5**	**4.2**	**3.7**	1.07
Erset S.a.r.l	*PCO 26*	*339-13-20*	*S*	*R407C*		*Siehe / see SAPAC SA, PCO 26*																		
Route de Morat 67	*PCO 26*	*171-13-12*	*S*	*R407C*		*Siehe / see SAPAC SA, PCO 26*																		
F - 68000 Colmar	PCO 75	*340-13-21*	S	R407C		*Siehe / see SAPAC SA, PCO 75*																		
	PCO 75	*172-13-13*	*S*	*R407C*		*Siehe / see SAPAC SA, PCO 75*																		
Hoval Aktiengesellschaft	ThermaliaH twin (35)	330-13-11	S	R134a	5.8	Heizleistung / Heat. cap. [kW]	24.3	20.9	17.9	23.2	20.0	20.5	17.2	13.9	3.60		Heizleistung / Heat. cap. [kW]	33.3	28.8	31.4	27.2	29.3	25.5	4.96
Austrasse 70	*ThermaliaH twin (35)*	*167-13-08*	*S*	*R134a*	*5.8*	El. Leistung / Input power [kW]	4.7	4.6	4.4	5.5	5.4	6.4	6.2	6.0	3.47	**66**	El. Leistung / Input power [kW]	5.0	4.9	5.9	5.9	7.0	6.8	4.75
FL - 9490 Vaduz						**COP (2 Compressors) [-]**	**5.2**	**4.6**	**4.0**	**4.2**	**3.7**	**3.2**	**2.8**	**2.3**	1.87	B0 / W67	**COP (2 Compressors) [-]**	**6.6**	**5.9**	**5.3**	**4.6**	**4.2**	**3.7**	2.77
						Heizleistung / Heat. cap. [kW]											Heizleistung / Heat. cap. [kW]		13.8		12.3		10.2	2.39
						El. Leistung / Input power [kW]										**-**	El. Leistung / Input power [kW]		2.4		2.9		3.4	2.14
						COP [-]											**COP (1 Compressor) [-]**		**5.7**		**4.3**		**3.0**	1.10
	Thermalia twin (35)	319-12-18	S	R407C	6.0	Heizleistung / Heat. cap. [kW]	40.0	35.0	30.6	38.0	33.5	36.8	32.3	28.2	6.05		Heizleistung / Heat. cap. [kW]	48.6	46.2	49.4	43.7	47.5	42.0	7.97
	Thermalia twin (35)	*148-13-02*	*S*	*R407C*	*6.0*	El. Leistung / Input power [kW]	7.9	7.8	7.6	9.5	9.3	11.0	10.7	10.5	5.80	**65**	El. Leistung / Input power [kW]	8.3	8.3	10.0	9.9	11.7	11.5	7.59
						COP (2 Compressors) [-]	**5.1**	**4.5**	**4.0**	**4.0**	**3.6**	**3.4**	**3.0**	**2.7**	3.51	B0 / W62	**COP (2 Compressors) [-]**	**5.9**	**5.6**	**4.9**	**4.4**	**4.0**	**3.7**	4.59

Prüfresultate Sole/Wasser- und Wasser/Wasser-Wärmepumpen basierend auf der EN 14511:2011

Test results of brine to water heat pumps and water to water heat pumps based on EN 14511:2011

Auftraggeber Customer	Gerät Type	Prüfnummer Test number	Produktart Product type	Kältemittel Refrigerant	Kältemittelmenge [kg] Capacity of refrigerant	Prüfbedingungen Sole-Wasser Test conditions brine to water										Schallleistungspegel innen [dB(A)] Sound power level indoor	Prüfbedingungen Wasser-Wasser Test conditions water to water							
						Volumenstromeinstellung Volume flow adjustment	V_{35}			V_{45}		V_{55}					Volumenstromeinstellung Volume flow adjustment	V_{35}		V_{45}		V_{55}		
							B5 / W35	B0 / W35 - 30	B-5 / W35	B5 / W45	B0 / W45 - 40	B5 / W55	B0 / W55 - 47	B-5 / W55	Volumenstrom [m³/h] Volume flow			W15 / W35	W10 / W35 - 30	W15 / W45	W10 / W45 - 40	W15 / W55	W10 / W55 - 47	Volumenstrom [m³/h] Volume flow
Hoval Aktiengesellschaft	Thermalia twin (35)	319-12-18	S	R407C	6.0	Heizleistung / Heat. cap. [kW]		18.2			16.6		15.5		6.05		Heizleistung / Heat. cap. [kW]							
Austrasse 70						El. Leistung / Input power [kW]		4.1			4.9		5.6		5.80	**62**	El. Leistung / Input power [kW]							
FL - 9490 Vaduz						**COP (1 Compressor) [-]**		**4.4**			**3.4**		**2.7**		3.51	B0 / W62	**COP [-]**							
Kermi GmbH	x-change WPS 10	314-12-13	S	R410A	4.4	Heizleistung / Heat. cap. [kW]	10.8	9.3	7.9	9.9	8.5	9.3	8.0	6.9	1.61									
Pankofen Bahnhof 1	(Compressor: 129 Hz)					El. Leistung / Input power [kW]	2.1	2.1	2.1	2.6	2.6	3.1	3.1	3.1	1.47	**44**								
D - 94447 Plattling						**COP [-]**	**5.2**	**4.4**	**3.7**	**3.9**	**3.3**	**3.0**	**2.6**	**2.2**	0.87	B0 / W63								
Multi Energie AG	*FSW 5.3*	*312-12-11*	S	*R407C*	*2.4*	*Siehe / see CTC Giersch AG, MSW 8*																		
Wiesentalstrasse 20	*FWW 5.3*	*160-12-07*	S	*R407C*	*2.4*	*Siehe / see CTC Giersch AG, MWW 8*																		
CH - 8355 Aadorf																								
Sapac SA	PCO 26	339-13-20	S	R407C	2.7	Heizleistung / Heat. cap. [kW]	11.8	10.3	8.8	11.1	9.7	10.7	9.4	8.1	1.77		Heizleistung / Heat. cap. [kW]	14.3	13.8	14.7	12.8	14.0	12.2	2.39
Mühleweg 2	*PCO 26*	*171-13-12*	S	*R407C*	*2.7*	El. Leistung / Input power [kW]	2.4	2.3	2.3	2.8	2.8	3.3	3.3	3.2	1.68	**54**	El. Leistung / Input power [kW]	2.5	2.5	3.0	3.0	3.5	3.4	2.21
CH - 1734 Tentlingen						**COP [-]**	**5.0**	**4.5**	**3.9**	**3.9**	**3.5**	**3.2**	**2.9**	**2.5**	1.01	B0 / W55	**COP [-]**	**5.7**	**5.5**	**4.9**	**4.3**	**4.0**	**3.6**	1.33
	PCO 75	340-13-21	S	R407C		Heizleistung / Heat. cap. [kW]	35.3	30.6	26.2	33.2	28.9	32.0	27.7	23.9	5.28		Heizleistung / Heat. cap. [kW]	47.6	41.5	44.4	38.6	42.6	37.0	7.18
	PCO 75	*172-13-13*	S	*R407C*		El. Leistung / Input power [kW]	7.2	6.9	6.7	8.3	8.0	9.4	9.1	8.7	5.01	**51**	El. Leistung / Input power [kW]	8.4	7.8	9.2	8.8	10.2	9.9	6.74
						COP [-]	**4.9**	**4.4**	**3.9**	**4.0**	**3.6**	**3.4**	**3.1**	**2.8**	3.02	B0 / W55	**COP [-]**	**5.6**	**5.3**	**4.8**	**4.4**	**4.2**	**3.7**	4.00
Striega-Therm AG	SWU 8	322-13-03	S	R407C	2.5	Heizleistung / Heat. cap. [kW]	9.3	8.2	7.2	8.8	7.8	8.6	7.5	6.6	1.40		Heizleistung / Heat. cap. [kW]	11.4	10.4	10.8	9.9	10.6	9.5	1.78
Breitenstrasse 10	*SWU 8*	*163-13-04*	S	*R407C*	*2.5*	El. Leistung / Input power [kW]	1.9	1.8	1.8	2.2	2.2	2.6	2.6	2.5	1.34	**44**	El. Leistung / Input power [kW]	1.9	1.9	2.3	2.3	2.6	2.6	1.70
CH - 4852 Rothrist						**COP [-]**	**5.0**	**4.5**	**4.0**	**3.9**	**3.5**	**3.3**	**2.9**	**2.6**	0.81	B0 / W55	**COP [-]**	**5.9**	**5.5**	**4.7**	**4.4**	**4.0**	**3.6**	1.03
	SWU 14	323-13-04	S	R407C	2.6	Heizleistung / Heat. cap. [kW]	16.6	13.7	12.0	15.0	13.2	14.5	12.8	11.2	2.38		Heizleistung / Heat. cap. [kW]	20.2	18.1	19.2	17.3	18.5	16.5	3.12
	SWU 14	*164-13-05*	S	*R407C*	*2.6*	El. Leistung / Input power [kW]	3.2	3.1	3.1	3.8	3.7	4.4	4.3	4.2	2.29	**50**	El. Leistung / Input power [kW]	3.4	3.3	4.0	4.0	4.6	4.6	2.95
						COP [-]	**5.0**	**4.4**	**3.9**	**3.9**	**3.6**	**3.3**	**3.0**	**2.7**	1.40	B0 / W55	**COP [-]**	**5.9**	**5.4**	**4.8**	**4.3**	**4.0**	**3.6**	1.79
Viessmann (Schweiz) AG	E-Natura 350-G 33kW	318-12-17	S	R410A	9.1	Heizleistung / Heat. cap. [kW]	36.6	32.7	29.2	36.7	33.3	37.7	34.2	31.0	5.64		Heizleistung / Heat. cap. [kW]							
Gesch.-Ber. SATAG Thermotechnik	BWH351.A33					El. Leistung / Input power [kW]	6.5	6.6	6.7	8.3	8.5	10.3	10.4	10.4	5.80	**55**	El. Leistung / Input power [kW]							
Romanshornerstrasse 36						**COP [-]**	**5.6**	**5.0**	**4.4**	**4.4**	**3.9**	**3.7**	**3.3**	**3.0**	3.72	B0 / W65	**COP [-]**							
CH - 9320 Arbon						Heizleistung / Heat. cap. [kW]											Heizleistung / Heat. cap. [kW]	43.3	42.2	43.3	42.0	43.5	42.5	7.29
	E-Natura 350-G 41kW	*161-13-01*	S	*R410A*	*9.1*	El. Leistung / Input power [kW]										**55**	El. Leistung / Input power [kW]	7.0	6.8	9.0	8.6	11.0	10.6	7.29
	WWH351.A41					**COP [-]**										B0 / W65	**COP [-]**	**6.2**	**6.2**	**4.8**	**4.9**	**3.9**	**4.0**	4.62
	E-Natura 350-G 54kW	333-13-14	S	R410A	2x 7.3	Heizleistung / Heat. cap. [kW]	63.0	56.9	50.8	63.6	57.5	64.3	58.1	52.3	9.90		Heizleistung / Heat. cap. [kW]							
	BWH352.A54					El. Leistung / Input power [kW]	11.4	11.7	11.8	14.5	14.7	17.5	17.8	17.8	10.00	**58**	El. Leistung / Input power [kW]							
						COP (2 Compressors) [-]	**5.5**	**4.9**	**4.3**	**4.4**	**3.9**	**3.7**	**3.3**	**2.9**	6.34	B0 / W65	**COP [-]**							
						Heizleistung / Heat. cap. [kW]	31.5	28.4	25.4	31.8	28.7	32.1	29.0	26.2	4.94		Heizleistung / Heat. cap. [kW]							
						El. Leistung / Input power [kW]	5.7	5.8	5.9	7.3	7.4	8.8	8.8	8.9	4.97	**56**	El. Leistung / Input power [kW]							
						COP (1 Compressor) [-]	**5.5**	**4.9**	**4.3**	**4.4**	**3.9**	**3.7**	**3.3**	**2.9**	3.15	B0 / W65	**COP [-]**							

Prüfresultate Sole/Wasser- und Wasser/Wasser-Wärmepumpen basierend auf der EN 14511:2011

Test results of brine to water heat pumps and water to water heat pumps based on EN 14511:2011

Auftraggeber Customer	**Gerät** Type	Prüfnummer Test number	Produktart Product type	Kältemittel Refrigerant	Kältemittelmenge [kg] Capacity of refrigerant	**Prüfbedingungen Sole-Wasser** Test conditions brine to water										Schallleistungspegel innen [dB(A)] Sound power level indoor	**Prüfbedingungen Wasser-Wasser** Test conditions water to water							
						Volumenstromeinstellung Volume flow adjustment	V_{35}			V_{45}		V_{55}			Volumenstrom [m³/h] Volume flow		Volumenstromeinstellung Volume flow adjustment	V_{35}		V_{45}		V_{55}		Volumenstrom [m³/h] Volume flow
							B5 / W35	B0 / W35 - 30	B-5 / W35	B5 / W45	B0 / W45 - 40	B5 / W55	B0 / W55 - 47	B-5 / W55				W15 / W35	W10 / W35 - 30	W15 / W45	W10 / W45 - 40	W15 / W55	W10 / W55 - 47	
Viessmann (Schweiz) AG						Heizleistung / Heat. cap. [kW]											Heizleistung / Heat. cap. [kW]	74.9	72.4	74.5	72.2	75.3	72.5	12.56
Gesch.-Ber. SATAG Thermotechnik	*E-Natura 350-G 68kW*	*168-13-09*	*S*	*R410A*	*2x 7.3*	El. Leistung / Input power [kW]										**58**	El. Leistung / Input power [kW]	11.9	11.5	15.2	14.7	18.4	17.8	12.53
Romanshornerstrasse 36	*WWH352.A68*					**COP [-]**										B0 / W65	**COP (2 Compressors) [-]**	**6.3**	**6.3**	**4.9**	**4.9**	**4.1**	**4.1**	7.88
CH - 9320 Arbon						Heizleistung / Heat. cap. [kW]											Heizleistung / Heat. cap. [kW]	37.4	36.0	37.3	35.9	37.6	36.0	6.25
	E-Natura 350-G 68kW	*168-13-09*	*S*	*R410A*	*2x 7.3*	El. Leistung / Input power [kW]										**56**	El. Leistung / Input power [kW]	5.9	5.8	7.6	7.3	9.2	8.8	6.25
	WWH352.A68					**COP [-]**										B0 / W65	**COP (1 Compressor) [-]**	**6.3**	**6.3**	**4.9**	**4.9**	**4.1**	**4.1**	3.92
Viessmann Wärmepumpen GmbH	Vitocal 300-G BW 301.A45	328-13-09	S	R410A	10.0	Heizleistung / Heat. cap. [kW]	50.9	44.4	37.7	47.7	41.9	45.9	40.3	35.7	7.66		Heizleistung / Heat. cap. [kW]	68.0	59.5	63.1	55.6	60.1	53.1	10.28
Viessmannstrasse 1	*Vitocal 300-G BW 301.A45*	*166-13-07*	*S*	*R410A*	*10.0*	El. Leistung / Input power [kW]	9.8	9.7	9.7	11.7	11.7	13.5	13.6	13.5	7.28	**51**	El. Leistung / Input power [kW]	10.6	10.4	12.2	12.1	14.0	14.0	9.66
D - 35108 Allendorf						**COP [-]**	**5.2**	**4.6**	**4.0**	**4.1**	**3.6**	**3.4**	**3.0**	**2.6**	4.40	B0 / W60	**COP [-]**	**6.4**	**5.7**	**5.2**	**4.6**	**4.3**	**3.8**	5.78
Wolf-Technik GmbH	Aqua-Plus 8	303-12-02	S	R407C	2.4	Heizleistung / Heat. cap. [kW]	9.0	7.9	6.9	8.4	7.4	8.1	7.1	6.2	1.36		Heizleistung / Heat. cap. [kW]							
Hattstedter Strasse 9						El. Leistung / Input power [kW]	1.8	1.8	1.8	2.2	2.1	2.5	2.5	2.5	1.29	**48**	El. Leistung / Input power [kW]							
D - 25860 Horstedt/Husum						**COP [-]**	**4.9**	**4.4**	**3.9**	**3.9**	**3.5**	**3.2**	**2.8**	**2.5**	0.77	B0 / W55	**COP [-]**							

Produktart / Product type

S Serienprodukt / Standard product

P Prototyp / Prototype

E Einzelanfertigung / Single-unit production

Abkürzungen / Abbreviations

B Soletemperatur / Brine temperature

W Wassertemperatur / Water temperature

V_{xy} Durchflussrate / Volume flow rate

Prüfresultate Sole/Wasser- und Wasser/Wasser-Wärmepumpen basierend auf der EN 14511:2004 und EN 14511:2007

Test results of brine to water heat pumps and water to water heat pumps based on EN 14511:2004 and EN 14511:2007

Auftraggeber Customer	**Gerät** Type	Prüfnummer Test number	Produktart Product type	Kältemittel Refrigerant	Kältemittelmenge [kg] Capacity of refrigerant	**Prüfbedingungen Sole-Wasser** Test conditions brine to water		**B5 / W35**	**B0 / W35 - 30**	**B5 / W45**	**B0 / W45**	**B-5 / W45**	**B5 / W55**	**B0 / W55**	Volumenstrom [m³/h] Volume flow	Schallleistungspegel innen [dB(A)] Sound power level indoor	**Prüfbedingungen Wasser-Wasser** Test conditions water to water		**W10 / W35 - 30**	**W15 / W45**	**W10 / W45**	**W15 / W55**	**W10 / W55**	Volumenstrom [m³/h] Volume flow
Alpha-InnoTec GmbH	SWC 80 H	214-08-12	S	R407C	2.2	Heizleistung / Heat. cap.	[kW]	10.3	9.0	9.7	8.6	7.5	9.1	8.0			Heizleistung / Heat. cap.	[kW]						
Industriestrasse 3						El. Leistung / Input power	[kW]	2.1	2.1	2.5	2.5	2.5	3.1	3.0	1.6	**50**	El. Leistung / Input power	[kW]						
D - 95359 Kasendorf						**COP**	**[-]**	**4.9**	**4.4**	**3.8**	**3.4**	**3.0**	**2.9**	**2.6**			**COP**	**[-]**						
	SWC 140 H	215-08-13	S	R407C	2.7	Heizleistung / Heat. cap.	[kW]	16.2	14.2	15.5	13.4	11.4	14.8	12.7			Heizleistung / Heat. cap.	[kW]						
						El. Leistung / Input power	[kW]	3.2	3.2	4.0	3.9	3.9	4.8	4.8	2.4	**49**	El. Leistung / Input power	[kW]						
						COP	**[-]**	**5.0**	**4.4**	**3.9**	**3.4**	**2.9**	**3.1**	**2.7**			**COP**	**[-]**						
BARTL Wärmepumpen	ECO 2S	231-09-14	S	R407C	1.6	Heizleistung / Heat. cap.	[kW]	9.1	8.1	8.6	7.4	6.2	8.0	7.1			Heizleistung / Heat. cap.	[kW]						
Wörthstrasse 13/1						El. Leistung / Input power	[kW]	1.9	1.9	2.3	2.3	2.2	2.8	2.8	1.4	**46**	El. Leistung / Input power	[kW]						
D - 89077 Ulm						**COP**	**[-]**	**4.8**	**4.3**	**3.7**	**3.2**	**2.8**	**2.9**	**2.5**			**COP**	**[-]**						
	ECO 2S / HG	256-10-07	S	R407C	1.5	Heizleistung / Heat. cap.	[kW]	9.0	7.9	8.5	7.4	6.4	7.8	6.8			Heizleistung / Heat. cap.	[kW]						
						El. Leistung / Input power	[kW]	1.9	1.8	2.2	2.2	2.2	2.7	2.7	1.4	**48**	El. Leistung / Input power	[kW]						
						COP	**[-]**	**4.9**	**4.3**	**3.8**	**3.3**	**2.9**	**2.9**	**2.5**			**COP**	**[-]**						
	ECO 12S	232-09-15	S	R407C	4.1	Heizleistung / Heat. cap.	[kW]	32.8	28.4	30.8	26.5	22.7	29.5	25.6			Heizleistung / Heat. cap.	[kW]						
						El. Leistung / Input power	[kW]	7.1	7.0	8.5	8.4	8.2	10.3	10.0	5.0	**51**	El. Leistung / Input power	[kW]						
						COP	**[-]**	**4.6**	**4.0**	**3.6**	**3.2**	**2.8**	**2.9**	**2.6**			**COP**	**[-]**						
	ECO 18S	254-10-05	S	R407C	7.8	Heizleistung / Heat. cap.	[kW]	48.4	41.9	46.6	40.4	33.9	44.5	38.3			Heizleistung / Heat. cap.	[kW]						
						El. Leistung / Input power	[kW]	10.3	10.2	12.6	12.6	12.4	15.4	15.3	7.4	**58**	El. Leistung / Input power	[kW]						
						COP	**[-]**	**4.7**	**4.1**	**3.7**	**3.2**	**2.7**	**2.9**	**2.5**			**COP**	**[-]**						
	WB 6 CF/W/HG	141-11-01	S	R407C	2.8	Heizleistung / Heat. cap.	[kW]										Heizleistung / Heat. cap.	[kW]	18.4	19.9	17.4	18.9	16.8	
						El. Leistung / Input power	[kW]									**45**	El. Leistung / Input power	[kW]	3.6	4.4	4.4	5.5	5.5	3.2
						COP	**[-]**										**COP**	**[-]**	**5.1**	**4.5**	**3.9**	**3.5**	**3.1**	
Bion Bauhaus AG	SW 9/1	202-07-08	S	R290	1.3	Heizleistung / Heat. cap.	[kW]	9.7	8.4	9.2	7.9	7.1	8.9	7.8			Heizleistung / Heat. cap.	[kW]						
Im Dorf 23						El. Leistung / Input power	[kW]	1.8	1.8	2.2	2.3	2.3	2.8	2.8	1.5	**52**	El. Leistung / Input power	[kW]						
CH - 9203 Niederwil						**COP**	**[-]**	**5.5**	**4.7**	**4.2**	**3.5**	**3.1**	**3.2**	**2.8**			**COP**	**[-]**						
CTA AG	Optiheat 1-6es	311-12-10	S	R410A	1.8	Heizleistung / Heat. cap.	[kW]	6.7	5.9	6.4	5.6	4.8	6.0	5.2			Heizleistung / Heat. cap.	[kW]	7.9	8.3	7.4	7.8	6.9	
Hunzikenstrasse 2	Optiheat 1-6es	158-12-05	S	R410A	1.8	El. Leistung / Input power	[kW]	1.3	1.3	1.6	1.6	1.6	2.0	2.0	1.0	**39**	El. Leistung / Input power	[kW]	1.3	1.7	1.7	2.1	2.1	1.4
CH - 3110 Münsingen						**COP**	**[-]**	**5.1**	**4.5**	**3.9**	**3.4**	**3.0**	**3.0**	**2.6**			**COP**	**[-]**	**5.9**	**5.0**	**4.4**	**3.8**	**3.3**	
	Optiheat 13es	250-10-01	S	R410A	2.4	Heizleistung / Heat. cap.	[kW]	14.5	12.7	13.9	12.3	10.8	13.4	11.8			Heizleistung / Heat. cap.	[kW]	17.1	18.4	16.4	17.4	15.5	
	Optiheat 13es	130-10-01	S	R410A	2.5	El. Leistung / Input power	[kW]	2.9	2.9	3.6	3.5	3.5	4.3	4.3	2.2	**45**	El. Leistung / Input power	[kW]	3.0	3.8	3.8	4.6	4.6	3.0
						COP	**[-]**	**5.0**	**4.4**	**3.9**	**3.5**	**3.1**	**3.1**	**2.8**			**COP**	**[-]**	**5.7**	**4.9**	**4.4**	**3.8**	**3.4**	
	Optiheat 1-14es	307-12-06	S	R410A	2.7	Heizleistung / Heat. cap.	[kW]	15.0	13.2	14.3	12.1	9.4	13.5	11.8			Heizleistung / Heat. cap.	[kW]	17.6	18.6	16.5	17.5	15.5	
	Optiheat 1-14es	157-12-04	S	R410A	2.7	El. Leistung / Input power	[kW]	2.9	2.9	3.6	3.5	3.5	4.4	4.3	2.3	**48**	El. Leistung / Input power	[kW]	3.0	3.7	3.7	4.6	4.6	3.1
						COP	**[-]**	**5.2**	**4.6**	**4.0**	**3.4**	**2.7**	**3.1**	**2.7**			**COP**	**[-]**	**5.9**	**5.0**	**4.5**	**3.8**	**3.4**	

Prüfresultate Sole/Wasser- und Wasser/Wasser-Wärmepumpen basierend auf der EN 14511:2004 und EN 14511:2007

Test results of brine to water heat pumps and water to water heat pumps based on EN 14511:2004 and EN 14511:2007

Auftraggeber Customer	**Gerät** Type	Prüfnummer Test number	Produktart Product type	Kältemittel Refrigerant	Kältemittelmenge [kg] Capacity of refrigerant	**Prüfbedingungen Sole-Wasser** Test conditions brine to water		**B5 / W35**	**B0 / W35 - 30**	**B5 / W45**	**B0 / W45**	**B-5 / W45**	**B5 / W55**	**B0 / W55**	Volumenstrom [m³/h] Volume flow	Schallleistungspegel innen [dB(A)] Sound power level indoor	**Prüfbedingungen Wasser-Wasser** Test conditions water to water		**W10 / W35 - 30**	**W15 / W45**	**W10 / W45**	**W15 / W55**	**W10 / W55**	Volumenstrom [m³/h] Volume flow
CTA AG	Optiheat 42e	187-06-05	S	R410A	7.7	Heizleistung / Heat. cap.	[kW]	47.1	41.6	46.0	41.1	35.9	44.1	39.2			Heizleistung / Heat. cap.	[kW]						
Hunzikenstrasse 2						El. Leistung / Input power	[kW]	10.1	10.1	12.5	12.4	12.4	15.5	15.5	7.1	**64**	El. Leistung / Input power	[kW]						
CH - 3110 Münsingen						**COP**	**[-]**	**4.6**	**4.1**	**3.7**	**3.3**	**2.9**	**2.9**	**2.5**			**COP**	**[-]**						
	Optiheat 55e	188-06-06	S	R410A	9.1	Heizleistung / Heat. cap.	[kW]	61.5	54.7	58.8	51.8	44.8	55.1	48.4			Heizleistung / Heat. cap.	[kW]						
						El. Leistung / Input power	[kW]	12.8	12.8	16.4	16.4	16.5	20.3	20.7	9.4	**68**	El. Leistung / Input power	[kW]						
						COP	**[-]**	**4.8**	**4.3**	**3.6**	**3.2**	**2.7**	**2.7**	**2.3**			**COP**	**[-]**						
CTC Giersch AG	CSW 7.5	244-09-27	S	R407C	2.0	Heizleistung / Heat. cap.	[kW]	9.0	7.9	8.7	7.5	6.5	8.5	7.4			Heizleistung / Heat. cap.	[kW]						
Bahnhofstrasse 60						El. Leistung / Input power	[kW]	1.9	1.9	2.3	2.2	2.2	2.7	2.7	1.3	**48**	El. Leistung / Input power	[kW]						
CH - 8112 Otelfingen						**COP**	**[-]**	**4.6**	**4.2**	**3.8**	**3.4**	**3.0**	**3.1**	**2.8**			**COP**	**[-]**						
	MSW 8	203-08-01	S	R407C	4.0	Heizleistung / Heat. cap.	[kW]	9.4	8.2	9.0	7.9	6.8	8.9	7.7			Heizleistung / Heat. cap.	[kW]						
						El. Leistung / Input power	[kW]	2.1	2.2	2.6	2.6	2.4	3.5	3.3	1.4	**51**	El. Leistung / Input power	[kW]						
						COP	**[-]**	**4.6**	**4.1**	**3.5**	**3.1**	**2.9**	**2.6**	**2.3**			**COP**	**[-]**						
	MSW 20	205-08-03	S	R407C	9.0	Heizleistung / Heat. cap.	[kW]	21.3	19.3	20.8	18.8	16.5	20.6	18.4			Heizleistung / Heat. cap.	[kW]						
						El. Leistung / Input power	[kW]	4.6	4.6	5.7	5.7	5.6	7.1	6.9	3.3	**55**	El. Leistung / Input power	[kW]						
						COP	**[-]**	**4.6**	**4.2**	**3.7**	**3.3**	**2.9**	**2.9**	**2.7**			**COP**	**[-]**						
	MSW 34	245-09-28	S	R407C	7.2	Heizleistung / Heat. cap.	[kW]	40.0	35.1	38.9	33.8	28.8	37.1	32.2			Heizleistung / Heat. cap.	[kW]						
						El. Leistung / Input power	[kW]	9.1	8.7	10.6	10.1	9.6	12.2	11.7	6.0	**64**	El. Leistung / Input power	[kW]						
						COP	**[-]**	**4.4**	**4.0**	**3.7**	**3.3**	**3.0**	**3.0**	**2.8**			**COP**	**[-]**						
Elcotherm AG	AQUATOP T11C-HT	217-08-15	S	R134a	2.6	Heizleistung / Heat. cap.	[kW]	11.9	10.2	11.1	9.8	8.5	10.6	9.3			Heizleistung / Heat. cap.	[kW]	14.3	15.6	13.6	14.6	12.8	
Sarganserstrasse 100	AQUATOP T11C-HT	124-08-02	S			El. Leistung / Input power	[kW]	2.3	2.3	2.9	2.9	2.9	3.6	3.6	1.8	**49**	El. Leistung / Input power	[kW]	2.5	3.1	3.1	3.8	3.8	2.5
CH - 7324 Vilters						**COP**	**[-]**	**5.1**	**4.4**	**3.8**	**3.4**	**3.0**	**2.9**	**2.6**			**COP**	**[-]**	**5.8**	**5.1**	**4.4**	**3.8**	**3.4**	
	AQUATOP T17CH	251-10-02	S	R407C	3.3	Heizleistung / Heat. cap.	[kW]	20.1	17.7	19.3	17.1	14.9	18.6	16.6			Heizleistung / Heat. cap.	[kW]	22.9	24.7	22.0	23.8	21.1	
	AQUATOP T17CH	131-10-02	S	R407C	3.3	El. Leistung / Input power	[kW]	3.9	4.0	4.8	4.9	4.9	6.0	6.1	3.1	**48**	El. Leistung / Input power	[kW]	4.0	4.9	5.0	6.1	6.2	4.0
						COP	**[-]**	**5.2**	**4.5**	**4.0**	**3.5**	**3.1**	**3.1**	**2.7**			**COP**	**[-]**	**5.7**	**5.0**	**4.4**	**3.9**	**3.4**	
	AQUATOP T28H	239-09-22	S	R407C	5.7	Heizleistung / Heat. cap.	[kW]	32.6	28.7	31.4	26.1	24.4	29.4	24.8			Heizleistung / Heat. cap.	[kW]	35.5	40.0	35.6	37.7	34.2	
	AQUATOP T28H	129-09-06	S	R407C	5.7	El. Leistung / Input power	[kW]	6.7	6.5	7.9	7.8	7.4	9.4	9.2	4.9	**59**	El. Leistung / Input power	[kW]	7.0	8.5	8.3	9.9	9.7	6.2
						COP	**[-]**	**4.9**	**4.4**	**4.0**	**3.4**	**3.3**	**3.1**	**2.7**			**COP**	**[-]**	**5.1**	**4.7**	**4.3**	**3.8**	**3.5**	
Friap AG	SEW 1-10	191-06-09	S	R407C	1.8	Heizleistung / Heat. cap.	[kW]	10.8	9.5	10.3	9.3	8.1	10.1	9.2			Heizleistung / Heat. cap.	[kW]						
Ey 9						El. Leistung / Input power	[kW]	2.2	2.3	2.9	2.9	3.0	3.7	3.7	1.6	**49**	El. Leistung / Input power	[kW]						
CH - 3036 Ittigen						**COP**	**[-]**	**4.8**	**4.1**	**3.6**	**3.2**	**2.8**	**2.7**	**2.5**			**COP**	**[-]**						
	FEW 1-27	248-09-31	S	R407C	5.5	Heizleistung / Heat. cap.	[kW]	32.8	29.0	31.7	28.2	24.8	30.5	27.1			Heizleistung / Heat. cap.	[kW]						
						El. Leistung / Input power	[kW]	7.2	7.1	8.5	8.4	8.0	10.2	9.8	5.1	**60**	El. Leistung / Input power	[kW]						
						COP	**[-]**	**4.5**	**4.1**	**3.7**	**3.4**	**3.1**	**3.0**	**2.7**			**COP**	**[-]**						

Prüfresultate Sole/Wasser- und Wasser/Wasser-Wärmepumpen basierend auf der EN 14511:2004 und EN 14511:2007

Test results of brine to water heat pumps and water to water heat pumps based on EN 14511:2004 and EN 14511:2007

Auftraggeber Customer	**Gerät** Type	Prüfnummer Test number	Produktart Product type	Kältemittel Refrigerant	Kältemittelmenge [kg] Capacity of refrigerant	**Prüfbedingungen Sole-Wasser** Test conditions brine to water		**B5 / W35**	**B0 / W35 - 30**	**B5 / W45**	**B0 / W45**	**B-5 / W45**	**B5 / W55**	**B0 / W55**	Volumenstrom [m³/h] Volume flow	Schallleistungspegel innen [dB(A)] Sound power level indoor	**Prüfbedingungen Wasser-Wasser** Test conditions water to water		**W10 / W35 - 30**	**W15 / W45**	**W10 / W45**	**W15 / W55**	**W10 / W55**	Volumenstrom [m³/h] Volume flow
Friap AG						Heizleistung / Heat. cap.	[kW]										Heizleistung / Heat. cap.	[kW]	8.5	9.5	8.2	9.1	7.8	
Ey 9	FWW 1-8	124-09-01	S	R134a	2.2	El. Leistung / Input power	[kW]									**50**	El. Leistung / Input power	[kW]	1.6	2.0	1.9	2.4	2.3	1.5
CH - 3036 Ittigen						**COP**	**[-]**										**COP**	**[-]**	**5.4**	**4.8**	**4.3**	**3.8**	**3.5**	
						Heizleistung / Heat. cap.	[kW]										Heizleistung / Heat. cap.	[kW]	13.9	15.3	13.7	14.8	13.1	
	FWW 1-14	125-09-02	S	R134a	3.4	El. Leistung / Input power	[kW]									**51**	El. Leistung / Input power	[kW]	2.6	3.2	3.1	3.8	3.7	2.4
						COP	**[-]**										**COP**	**[-]**	**5.4**	**4.8**	**4.4**	**3.9**	**3.5**	
FS Installationen	GHP 13	302-11-19	S	R410A	2.2	Heizleistung / Heat. cap.	[kW]	13.6	12.6	13.6	12.2	10.4	13.1	11.7			Heizleistung / Heat. cap.	[kW]	16.7	17.7	15.9	16.8	15.0	
Alemannenstrasse 3c	GHP 13	149-11-07	S	R410A	2.5	El. Leistung / Input power	[kW]	2.9	2.9	3.6	3.6	3.5	4.4	4.4		2.2	El. Leistung / Input power	[kW]	3.0	3.8	3.7	4.6	4.5	2.9
A - 6832 Sulz						**COP**	**[-]**	**4.6**	**4.3**	**3.8**	**3.4**	**2.9**	**3.0**	**2.7**		**51**	**COP**	**[-]**	**5.5**	**4.7**	**4.3**	**3.7**	**3.3**	
Green Terra AG	*BW 13 EVI*	*309-12-08*	*S*	*R407C*	*4.4*	*Siehe / see Wamak s.r.o, BW 13 EVI*																		
Wiesenstrasse 1a																								
CH - 8865 Bilten																								
Friap AG	HCS PN 35	193-06-11	S	R407C	1.9	Heizleistung / Heat. cap.	[kW]	10.3	8.9	9.3	8.0	6.8	8.3	7.0			Heizleistung / Heat. cap.	[kW]						
Ey 9						El. Leistung / Input power	[kW]	2.1	2.1	2.4	2.3	2.1	2.6	2.4		1.5	**51**	El. Leistung / Input power	[kW]						
CH - 3036 Ittigen						**COP**	**[-]**	**4.8**	**4.3**	**3.9**	**3.5**	**3.2**	**3.2**	**2.9**			**COP**	**[-]**						
	HCS PN 42	194-06-12	S	R407C	1.9	Heizleistung / Heat. cap.	[kW]	12.2	10.5	10.9	9.4	7.9	9.6	8.1			Heizleistung / Heat. cap.	[kW]						
						El. Leistung / Input power	[kW]	2.5	2.4	2.8	2.7	2.5	3.1	2.8		1.8	**51**	El. Leistung / Input power	[kW]						
						COP	**[-]**	**4.8**	**4.3**	**3.8**	**3.5**	**3.2**	**3.1**	**2.8**			**COP**	**[-]**						
	HCS-PN-42	257-10-08	S	R410A	2.3	Heizleistung / Heat. cap.	[kW]	12.1	10.4	11.0	9.5	8.0	9.7	8.2			Heizleistung / Heat. cap.	[kW]	14.5	15.1	13.1	13.7	11.6	
	HCW-PN-42	132-10-03	S	R410A	2.5	El. Leistung / Input power	[kW]	2.5	2.4	2.9	2.8	2.6	3.3	3.0		1.8	**46**	El. Leistung / Input power	[kW]	2.7	3.3	3.2	3.8	3.6	2.5
						COP	**[-]**	**4.8**	**4.3**	**3.8**	**3.4**	**3.1**	**3.0**	**2.7**			**COP**	**[-]**	**5.3**	**4.6**	**4.1**	**3.6**	**3.2**	
	HCS-PN-46	258-10-09	S	R410A	2.4	Heizleistung / Heat. cap.	[kW]	13.3	11.4	12.1	10.4	8.8	10.4	8.7			Heizleistung / Heat. cap.	[kW]	15.9	17.0	14.6	14.9	13.1	
	HCW-PN-46	133-10-04	S	R410A	2.6	El. Leistung / Input power	[kW]	2.8	2.7	3.2	3.0	2.8	3.5	3.3		2.0	**49**	El. Leistung / Input power	[kW]	3.0	3.6	3.5	4.2	4.0	2.8
						COP	**[-]**	**4.8**	**4.2**	**3.8**	**3.4**	**3.1**	**3.0**	**2.7**			**COP**	**[-]**	**5.3**	**4.7**	**4.2**	**3.6**	**3.3**	
Herz Energietechnik	commotherm 12	196-07-02	S	R407C	2.0	Heizleistung / Heat. cap.	[kW]	12.8	11.2	12.3	10.7	9.3	11.7	10.5			Heizleistung / Heat. cap.	[kW]	14.4	15.5	14.0	15.2	13.5	
Richard-Strauss-Str. 22	commotherm 12	121-07-01	S			El. Leistung / Input power	[kW]	2.6	2.7	3.3	3.4	3.4	4.2	4.2		1.9	**57**	El. Leistung / Input power	[kW]	2.7	3.4	3.4	4.2	4.2	2.5
A - 1230 Wien						**COP**	**[-]**	**4.9**	**4.2**	**3.7**	**3.2**	**2.8**	**2.8**	**2.5**			**COP**	**[-]**	**5.4**	**4.6**	**4.2**	**3.6**	**3.2**	
	commotherm 15	199-07-05	S	R407C	2.5	Heizleistung / Heat. cap.	[kW]	16.4	14.2	15.5	13.4	11.6	14.7	12.9			Heizleistung / Heat. cap.	[kW]	18.4	19.4	17.6	18.4	16.7	
	commotherm 15	122-07-02				El. Leistung / Input power	[kW]	3.5	3.5	4.4	4.3	4.3	5.5	5.6		2.5	**55**	El. Leistung / Input power	[kW]	3.6	4.4	4.4	5.5	5.5	3.2
						COP	**[-]**	**4.7**	**4.1**	**3.6**	**3.1**	**2.7**	**2.7**	**2.3**			**COP**	**[-]**	**5.2**	**4.4**	**4.0**	**3.4**	**3.0**	
Hoval Aktiengesellschaft	Thermalia H8	286-11-03	S	R134a	2.7	Heizleistung / Heat. cap.	[kW]	5.4	5.1	5.7	4.1	3.1	5.1	3.3			Heizleistung / Heat. cap.	[kW]	7.3	8.1	6.8	7.7	5.2	
Austrasse 70	Thermalia H8	144-11-03	S	R134a	2.7	El. Leistung / Input power	[kW]	1.1	1.1	1.3	1.3	1.3	1.6	1.6		0.9	**41**	El. Leistung / Input power	[kW]	1.2	1.4	1.4	1.7	1.7	1.3
FL - 9490 Vaduz						**COP**	**[-]**	**5.0**	**4.8**	**4.3**	**3.1**	**2.5**	**3.2**	**2.1**			**COP**	**[-]**	**6.2**	**5.6**	**4.9**	**4.5**	**3.0**	

Prüfresultate Sole/Wasser- und Wasser/Wasser-Wärmepumpen basierend auf der EN 14511:2004 und EN 14511:2007

Test results of brine to water heat pumps and water to water heat pumps based on EN 14511:2004 and EN 14511:2007

Auftraggeber Customer	**Gerät** Type	Prüfnummer Test number	Produktart Product type	Kältemittel Refrigerant	Kältemittelmenge [kg] Capacity of refrigerant	**Prüfbedingungen Sole-Wasser** Test conditions brine to water		**B5 / W35**	**B0 / W35 - 30**	**B5 / W45**	**B0 / W45**	**B-5 / W45**	**B5 / W55**	**B0 / W55**	Volumenstrom [m³/h] Volume flow	Schallleistungspegel innen [dB(A)] Sound power level indoor	**Prüfbedingungen Wasser-Wasser** Test conditions water to water		**W10 / W35 - 30**	**W15 / W45**	**W10 / W45**	**W15 / W55**	**W10 / W55**	Volumenstrom [m³/h] Volume flow
Hoval Aktiengesellschaft	Thermalia 8	279-11-02	S	R407C	2.3	Heizleistung / Heat. cap.	[kW]	9.5	8.2	9.0	7.9	6.8	8.5	7.5			Heizleistung / Heat. cap.	[kW]	11.4	12.1	10.6	11.2	9.9	
Austrasse 70	Thermalia 8	143-11-02	S	R407C	2.4	El. Leistung / Input power	[kW]	1.8	1.8	2.2	2.2	2.1	2.7	2.7	1.4	41	El. Leistung / Input power	[kW]	2.0	2.4	2.3	2.9	2.8	2.0
FL - 9490 Vaduz						**COP**	**[-]**	**5.1**	**4.6**	**4.1**	**3.5**	**3.2**	**3.2**	**2.8**			**COP**	**[-]**	**5.7**	**5.0**	**4.5**	**3.9**	**3.5**	
	Thermalia H15	288-11-05	S	R134a	3.9	Heizleistung / Heat. cap.	[kW]	10.7	9.2	10.4	8.9	6.0	10.0	7.4			Heizleistung / Heat. cap.	[kW]	12.9	14.2	12.4	13.6	11.8	
	Thermalia H15	147-11-05	S	R134a	3.9	El. Leistung / Input power	[kW]	2.0	1.9	2.4	2.3	2.3	2.9	2.8	1.6	45	El. Leistung / Input power	[kW]	2.1	2.5	2.5	3.1	3.0	2.2
						COP	**[-]**	**5.5**	**4.8**	**4.4**	**3.9**	**2.6**	**3.5**	**2.7**			**COP**	**[-]**	**6.3**	**5.6**	**5.0**	**4.4**	**3.9**	
	Thermalia 15	287-11-04	S	R407C	3.4	Heizleistung / Heat. cap.	[kW]	16.7	14.5	15.9	13.9	12.3	15.0	13.3			Heizleistung / Heat. cap.	[kW]	19.9	21.4	18.8	20.1	17.6	
	Thermalia 15	146-11-04	S	R407C	3.4	El. Leistung / Input power	[kW]	3.3	3.2	4.0	3.9	3.8	4.8	4.7	2.5	45	El. Leistung / Input power	[kW]	3.5	4.3	4.2	5.2	5.1	3.4
						COP	**[-]**	**5.1**	**4.5**	**4.0**	**3.5**	**3.2**	**3.1**	**2.8**			**COP**	**[-]**	**5.7**	**5.0**	**4.5**	**3.9**	**3.5**	
Kibernetik AG	Greenline HT Plus E7	183-06-01	S	R407C	1.4	Heizleistung / Heat. cap.	[kW]	8.4	7.3	7.9	6.8	5.7	7.3	6.3			Heizleistung / Heat. cap.	[kW]						
Langäulistrasse 62						El. Leistung / Input power	[kW]	1.8	1.8	2.2	2.2	2.1	2.6	2.6	1.3	40	El. Leistung / Input power	[kW]						
CH - 9470 Buchs SG						**COP**	**[-]**	**4.6**	**4.0**	**3.6**	**3.2**	**2.7**	**2.8**	**2.5**			**COP**	**[-]**						
Multi Energie AG	*FSW 5.3*	*203-08-01*	*S*	*R407C*	*4.0*	*Siehe / see CTC Giersch AG, MSW 8*																		
Wiesentalstrasse 20	*FSW 16.3*	*205-08-03*	*S*	*R407C*	*9.0*	*Siehe / see CTC Giersch AG, MSW 20*																		
CH - 8355 Aadorf																								
Ochsner Wärmepumpen GmbH	GMSW 10 plus	240-09-23	S	R407C	3.0	Heizleistung / Heat. cap.	[kW]	11.8	10.3	11.2	9.7	6.6	10.6	8.7			Heizleistung / Heat. cap.	[kW]	13.8	14.6	13.2	13.8	12.3	
Ochsner-Strasse 1	GMWW 13 plus	127-09-04	S	R407C	3.0	El. Leistung / Input power	[kW]	2.3	2.3	2.8	2.7	2.7	3.4	3.3	1.8	43	El. Leistung / Input power	[kW]	2.4	3.0	3.0	3.7	3.6	2.4
A - 3350 Haag						**COP**	**[-]**	**5.2**	**4.6**	**4.0**	**3.5**	**2.4**	**3.1**	**2.6**			**COP**	**[-]**	**5.7**	**4.9**	**4.4**	**3.8**	**3.4**	
	GMSW 10 plus S	234-09-17	S	R407C	4.8	Heizleistung / Heat. cap.	[kW]	12.1	10.6	11.5	10.0	8.6	10.8	9.1			Heizleistung / Heat. cap.	[kW]						
						El. Leistung / Input power	[kW]	2.3	2.2	2.8	2.7	2.7	3.4	3.4	1.9	43	El. Leistung / Input power	[kW]						
						COP	**[-]**	**5.3**	**4.7**	**4.1**	**3.7**	**3.2**	**3.2**	**2.7**			**COP**	**[-]**						
	GMSW 15 plus	243-09-26	S	R407C	3.3	Heizleistung / Heat. cap.	[kW]	16.0	14.2	15.3	13.5	11.6	14.6	12.5			Heizleistung / Heat. cap.	[kW]	19.0	20.0	17.7	18.6	16.3	
	GMWW 19 plus	128-09-05	S	R407C	3.4	El. Leistung / Input power	[kW]	3.2	3.2	3.9	3.9	3.9	4.8	4.9	2.5	50	El. Leistung / Input power	[kW]	3.3	4.0	4.0	4.9	4.9	3.3
						COP	**[-]**	**5.0**	**4.4**	**3.9**	**3.4**	**2.9**	**3.0**	**2.6**			**COP**	**[-]**	**5.7**	**4.9**	**4.4**	**3.8**	**3.3**	
	GMSW 28	300-11-17	S	R407C	4.5	Heizleistung / Heat. cap.	[kW]	25.1	22.2	24.2	21.3	18.2	22.9	20.0			Heizleistung / Heat. cap.	[kW]	29.5	31.2	28.0	29.5	26.3	
	GMWW 28	153-11-11	S	R407C	4.5	El. Leistung / Input power	[kW]	5.2	5.1	6.3	6.2	6.3	7.7	7.8	3.9	54	El. Leistung / Input power	[kW]	5.4	6.6	6.6	8.0	7.9	5.1
						COP	**[-]**	**4.9**	**4.3**	**3.9**	**3.4**	**2.9**	**3.0**	**2.6**			**COP**	**[-]**	**5.5**	**4.7**	**4.3**	**3.7**	**3.3**	
Ratiotherm GmbH + Co. KG	WP Max ZH 13	304-12-03	S	R407C	2.9	Heizleistung / Heat. cap.	[kW]	17.1	14.9	16.3	14.1	12.1	15.2	13.1			Heizleistung / Heat. cap.	[kW]	20.1	21.7	19.0	20.3	17.8	
Wellheimerstrasse 34	WP Max ZH 13	156-12-03	S	R407C	2.9	El. Leistung / Input power	[kW]	3.3	3.2	4.0	3.9	3.8	4.8	4.6	2.6	50	El. Leistung / Input power	[kW]	3.5	4.3	4.2	5.2	5.1	3.5
D - 91795 Dollnstein						**COP**	**[-]**	**5.2**	**4.6**	**4.1**	**3.6**	**3.2**	**3.2**	**2.8**			**COP**	**[-]**	**5.7**	**5.0**	**4.5**	**3.9**	**3.5**	
Sapac SA	ETNA 49-Plus	241-09-24	S	R407C	2.0	Heizleistung / Heat. cap.	[kW]	12.8	11.3	12.0	10.4	9.3	11.4	10.0			Heizleistung / Heat. cap.	[kW]						
Rte des Daillettes 6						El. Leistung / Input power	[kW]	2.6	2.6	3.1	3.1	3.0	3.8	3.7	2.0	43	El. Leistung / Input power	[kW]						
CH - 1705 Fribourg						**COP**	**[-]**	**4.9**	**4.4**	**3.8**	**3.4**	**3.1**	**3.0**	**2.7**			**COP**	**[-]**						

Prüfresultate Sole/Wasser- und Wasser/Wasser-Wärmepumpen basierend auf der EN 14511:2004 und EN 14511:2007

Test results of brine to water heat pumps and water to water heat pumps based on EN 14511:2004 and EN 14511:2007

Auftraggeber Customer	**Gerät** Type	Prüfnummer Test number	Produktart Product type	Kältemittel Refrigerant	Kältemittelmenge [kg] Capacity of refrigerant	**Prüfbedingungen Sole-Wasser** Test conditions brine to water		**B5 / W35**	**B0 / W35 - 30**	**B5 / W45**	**B0 / W45**	**B-5 / W45**	**B5 / W55**	**B0 / W55**	Volumenstrom [m³/h] Volume flow	Schallleistungspegel innen [dB(A)] Sound power level indoor	**Prüfbedingungen Wasser-Wasser** Test conditions water to water		**W10 / W35 - 30**	**W15 / W45**	**W10 / W45**	**W15 / W55**	**W10 / W55**	Volumenstrom [m³/h] Volume flow
Sapac SA	ETNA 120-Plus	242-09-25	S	R407C	4.5	Heizleistung / Heat. cap.	[kW]	33.2	29.3	31.2	27.7	23.9	29.4	26.3			Heizleistung / Heat. cap.	[kW]						
Rte des Daillettes 6						El. Leistung / Input power	[kW]	7.4	7.2	8.6	8.4	8.1	10.1	9.9	5.1	**55**	El. Leistung / Input power	[kW]						
CH - 1705 Fribourg						**COP**	**[-]**	**4.5**	**4.1**	**3.6**	**3.3**	**3.0**	**2.9**	**2.7**			**COP**	**[-]**						
SIMAKA GmbH	SIMATRON WP12	181-05-09	S	R407C	6.5	Heizleistung / Heat. cap.	[kW]	13.8	12.0	13.2	11.6	10.1	12.7	11.2			Heizleistung / Heat. cap.	[kW]						
Buchwies 14						El. Leistung / Input power	[kW]	2.9	2.9	3.4	3.3	3.2	4.2	4.0	2.1	**52**	El. Leistung / Input power	[kW]						
D - 88260 Argenbühl						**COP**	**[-]**	**4.8**	**4.2**	**3.9**	**3.5**	**3.1**	**3.1**	**2.8**			**COP**	**[-]**						
	SIMATRON WP 15	298-11-15	S	R407C	4.0	Heizleistung / Heat. cap.	[kW]	16.7	14.5	15.8	13.8	11.9	15.0	13.1			Heizleistung / Heat. cap.	[kW]	19.7	21.1	18.4	19.7	17.1	
	SIMATRON WP 15	151-11-09	S	R407C	4.0	El. Leistung / Input power	[kW]	3.2	3.1	3.9	3.8	3.7	4.7	4.6	2.5	**50**	El. Leistung / Input power	[kW]	3.4	4.2	4.1	5.0	4.9	3.4
						COP	**[-]**	**5.3**	**4.6**	**4.1**	**3.6**	**3.2**	**3.2**	**2.9**			**COP**	**[-]**	**5.8**	**5.1**	**4.5**	**3.9**	**3.5**	
	SIMATRON WP31	216-08-14	S	R407C	6.7	Heizleistung / Heat. cap.	[kW]	38.2	33.6	36.5	32.2	28.1	35.1	30.9			Heizleistung / Heat. cap.	[kW]	43.6	47.0	42.0	45.2	40.4	
	SIMATRON WP31	123-08-01	S	R407C	6.7	El. Leistung / Input power	[kW]	7.8	7.7	9.5	9.4	9.3	11.8	11.7	5.8	**56**	El. Leistung / Input power	[kW]	8.1	10.0	9.9	12.1	12.0	7.5
						COP	**[-]**	**4.9**	**4.4**	**3.8**	**3.4**	**3.0**	**3.0**	**2.6**			**COP**	**[-]**	**5.4**	**4.7**	**4.3**	**3.7**	**3.4**	
Solar- + Wärmepumpentechnik AG	Futura HSWP 34	200-07-07	S	R290	1.5	Heizleistung / Heat. cap.	[kW]	7.4	6.6	7.0	6.1	5.4	6.8	5.9			Heizleistung / Heat. cap.	[kW]						
Glatthaldenstrasse 15						El. Leistung / Input power	[kW]	1.4	1.5	1.8	1.7	1.7	2.1	2.1	1.1	**39**	El. Leistung / Input power	[kW]						
CH - 9230 Flawil						**COP**	**[-]**	**5.1**	**4.5**	**4.0**	**3.6**	**3.2**	**3.2**	**2.9**			**COP**	**[-]**						
	HSW21 EVU	305-12-04	S	R407C	2.8	Heizleistung / Heat. cap.	[kW]	9.7	8.4	9.2	7.9	6.8	8.6	7.4			Heizleistung / Heat. cap.	[kW]						
						El. Leistung / Input power	[kW]	1.8	1.7	2.1	2.1	2.1	2.6	2.5	1.5	**46**	El. Leistung / Input power	[kW]						
						COP	**[-]**	**5.5**	**4.8**	**4.3**	**3.7**	**3.3**	**3.3**	**2.9**			**COP**	**[-]**						
Voß Wärmepumpen GmbH	SW13R	290-12-01	S	R410A	4.9	Heizleistung / Heat. cap.	[kW]	14.2	12.5	13.3	11.7	10.3	12.6	11.0			Heizleistung / Heat. cap.	[kW]	17.1	18.1	16.0	16.7	14.8	
Lange Gasse 20	WW18R	155-12-02	S	R410A	4.9	El. Leistung / Input power	[kW]	2.7	2.7	3.4	3.4	3.3	4.1	4.0	2.2	**48**	El. Leistung / Input power	[kW]	2.8	3.4	3.5	4.3	4.3	3.0
D - 93437 Furth im Wald						**COP**	**[-]**	**5.2**	**4.6**	**3.9**	**3.5**	**3.1**	**3.0**	**2.7**			**COP**	**[-]**	**6.2**	**5.3**	**4.6**	**3.9**	**3.5**	
Wamak s.r.o.	BW 13 EVI	309-12-08	S	R407C	4.4	Heizleistung / Heat. cap.	[kW]	15.7	13.9	15.6	13.9	12.3	15.4	13.8			Heizleistung / Heat. cap.	[kW]						
Hodrusa - Hamre 1118						El. Leistung / Input power	[kW]	3.1	3.1	3.9	3.8	3.8	4.8	4.7	2.4	**57**	El. Leistung / Input power	[kW]						
SK - 96661 Hodrusa-Hamre						**COP**	**[-]**	**5.0**	**4.5**	**4.0**	**3.7**	**3.3**	**3.2**	**2.9**			**COP**	**[-]**						
Weider Wärmepumpen	SW 90 eso	281-10-32	S	R407C	2.8	Heizleistung / Heat. cap.	[kW]	7.9	6.9	7.5	6.6	5.7	7.2	6.3			Heizleistung / Heat. cap.	[kW]						
Oberer Achdamm 4						El. Leistung / Input power	[kW]	1.5	1.5	1.9	2.0	2.0	2.5	2.6	1.2	**45**	El. Leistung / Input power	[kW]						
A - 6971 Hard bei Bregenz						**COP**	**[-]**	**5.3**	**4.5**	**3.9**	**3.3**	**2.8**	**2.9**	**2.4**			**COP**	**[-]**						
						Heizleistung / Heat. cap.	[kW]										Heizleistung / Heat. cap.	[kW]	9.0	9.7	8.1	9.0	7.9	
	SW 90 egw	145-10-16	S	R407C	2.7	El. Leistung / Input power	[kW]									**56**	El. Leistung / Input power	[kW]	1.5	1.8	1.9	2.4	2.5	1.6
						COP	**[-]**										**COP**	**[-]**	**6.1**	**5.3**	**4.2**	**3.7**	**3.2**	
Zehnder Group AG	Z2 S1	282-10-33	S	R134a	1.2	Heizleistung / Heat. cap.	[kW]	2.8	2.4	2.7	2.3	2.0	2.5	2.1			Heizleistung / Heat. cap.	[kW]						
Oberfeldstrasse 2						El. Leistung / Input power	[kW]	0.7	0.6	0.7	0.7	0.7	0.9	0.8	0.4	**46**	El. Leistung / Input power	[kW]						
CH - 5722 Gränichen						**COP**	**[-]**	**4.3**	**3.8**	**3.6**	**3.2**	**2.8**	**3.0**	**2.6**			**COP**	**[-]**						

Prüfresultate Sole/Wasser- und Wasser/Wasser-Wärmepumpen basierend auf der EN 14511:2004 und EN 14511:2007

Test results of brine to water heat pumps and water to water heat pumps based on EN 14511:2004 and EN 14511:2007

Auftraggeber Customer	**Gerät** Type	Prüfnummer Test number	Produktart Product type	Kältemittel Refrigerant	Kältemittelmenge [kg] Capacity of refrigerant	**Prüfbedingungen Sole-Wasser** Test conditions brine to water		**B5 / W35**	**B0 / W35 - 30**	**B5 / W45**	**B0 / W45**	**B-5 / W45**	**B5 / W55**	**B0 / W55**	Volumenstrom [m³/h] Volume flow	Schallleistungspegel innen [dB(A)] Sound power level indoor	**Prüfbedingungen Wasser-Wasser** Test conditions water to water		**W10 / W35 - 30**	**W15 / W45**	**W10 / W45**	**W15 / W55**	**W10 / W55**	Volumenstrom [m³/h] Volume flow
Zehnder Group AG	Z4 S1	266-10-17	S	R410A	1.3	Heizleistung / Heat. cap.	[kW]	4.5	3.9	4.2	3.7	3.2	4.0	3.4			Heizleistung / Heat. cap.	[kW]						
Oberfeldstrasse 2						El. Leistung / Input power	[kW]	1.0	1.0	1.2	1.1	1.1	1.4	1.3	0.7	**47**	El. Leistung / Input power	[kW]						
CH - 5722 Gränichen						**COP**	**[-]**	**4.6**	**4.1**	**3.7**	**3.3**	**2.9**	**2.9**	**2.6**			**COP**	**[-]**						
	Z7 S1	264-10-15	S	R410A	1.7	Heizleistung / Heat. cap.	[kW]	8.0	6.9	7.6	6.5	5.7	7.1	6.1			Heizleistung / Heat. cap.	[kW]						
						El. Leistung / Input power	[kW]	1.6	1.6	2.0	2.0	2.0	2.5	2.6	1.2	**52**	El. Leistung / Input power	[kW]						
						COP	**[-]**	**5.0**	**4.3**	**3.9**	**3.2**	**2.8**	**2.9**	**2.3**			**COP**	**[-]**						
	Z10 S1	291-11-08	S	R410A	2.3	Heizleistung / Heat. cap.	[kW]	11.6	10.2	11.2	9.8	8.5	10.7	9.4			Heizleistung / Heat. cap.	[kW]						
						El. Leistung / Input power	[kW]	2.4	2.4	3.0	3.0	3.0	3.8	3.8	1.8	**-**	El. Leistung / Input power	[kW]						
						COP	**[-]**	**4.9**	**4.2**	**3.8**	**3.3**	**2.8**	**2.8**	**2.5**			**COP**	**[-]**						
	Z3 S3	272-10-23	S	R134a	1.3	Heizleistung / Heat. cap.	[kW]	4.0	3.6	3.9	3.4	2.9	3.7	3.2			Heizleistung / Heat. cap.	[kW]						
						El. Leistung / Input power	[kW]	0.9	0.9	1.0	1.0	1.0	1.2	1.1	0.6	**49**	El. Leistung / Input power	[kW]						
						COP	**[-]**	**4.6**	**4.1**	**3.8**	**3.4**	**3.0**	**3.1**	**2.8**			**COP**	**[-]**						
	Z6 S3	292-11-09	S	R410A	1.5	Heizleistung / Heat. cap.	[kW]	6.5	5.8	6.4	5.6	4.9	6.1	5.4			Heizleistung / Heat. cap.	[kW]						
						El. Leistung / Input power	[kW]	1.3	1.3	1.7	1.7	1.7	2.1	2.1	1.0	**-**	El. Leistung / Input power	[kW]						
						COP	**[-]**	**4.9**	**4.3**	**3.8**	**3.3**	**2.9**	**2.9**	**2.6**			**COP**	**[-]**						
	Z8 S3	293-11-10	S	R410A	2.0	Heizleistung / Heat. cap.	[kW]	10.1	8.8	9.7	8.5	7.5	9.3	8.2			Heizleistung / Heat. cap.	[kW]						
						El. Leistung / Input power	[kW]	2.0	2.0	2.5	2.5	2.6	3.2	3.2	1.5	**-**	El. Leistung / Input power	[kW]						
						COP	**[-]**	**5.0**	**4.4**	**3.9**	**3.4**	**2.9**	**2.9**	**2.5**			**COP**	**[-]**						
	Z10 S3	265-10-16	S	R410A	2.1	Heizleistung / Heat. cap.	[kW]	11.5	10.1	11.1	9.7	8.4	10.5	9.1			Heizleistung / Heat. cap.	[kW]						
						El. Leistung / Input power	[kW]	2.3	2.3	2.8	2.9	2.9	3.6	3.7	1.8	**57**	El. Leistung / Input power	[kW]						
						COP	**[-]**	**5.1**	**4.4**	**3.9**	**3.4**	**2.9**	**2.9**	**2.5**			**COP**	**[-]**						
	Z13 S3	294-11-11	S	R410A	2.6	Heizleistung / Heat. cap.	[kW]	16.2	14.3	15.8	13.9	12.2	15.2	13.5			Heizleistung / Heat. cap.	[kW]						
						El. Leistung / Input power	[kW]	3.2	3.3	4.1	4.1	4.1	5.1	5.1	2.5	**-**	El. Leistung / Input power	[kW]						
						COP	**[-]**	**5.0**	**4.3**	**3.8**	**3.4**	**2.9**	**3.0**	**2.6**			**COP**	**[-]**						

Produktart / Product type

S Serienprodukt / Standard product

P Prototyp / Prototype

E Einzelanfertigung / Single-unit production

Abkürzungen / Abbreviations

B Soletemperatur / Brine temperature

W Wassertemperatur / Water temperature