

Prüfresultate Sole/Wasser-Wärmepumpen basierend auf der EN 14511 und EN 14825

Test results of brine to water heat pumps based on EN 14511 and EN 14825

Auftraggeber Customer	Gerät Type	Prüfnummer Test number	Bauart Type of construction	Kältemittel Refrigerant	Kältemittelmenge [kg] Capacity of refrigerant	Prüfbedingungen Test conditions								Bivalentpunkt [°] Bivalent point	Volumenstrom [m³/h] Volume flow	SCOP	Schallleistungspegel aussen [dB(A)] Sound power level outdoor	Schallleistungspegel innen [dB(A)] Sound power level indoor
						low (35°C) - average												
						BO / W30-35	BO / W35 (A-10)	BO / W34 (A-7)	BO / W30 (A2)	BO / W27 (A7)	BO / W24 (A12)	Abiv / W_0						
CTA AG Hunzigenstrasse 1 CH - 3110 Münsingen	Optipro OP 110ed	416-20-04	a, e	R410A	2x 8.8	Heizleistung / Heat. cap. [kW]	107.1	107.1	106.0	55.7	56.0	56.3	107.1	-10 / 35	18.40	4.91	-	73.6
						El. Leistung / Input power [kW]	23.7	23.7	23.4	11.2	10.7	10.3	23.7					
						COP	[-]	4.5	4.5	5.0	5.2	5.5	4.5					
	Optipro OP 160ed	417-20-05	a, e	R410A	15.4 15.6	Heizleistung / Heat. cap. [kW]	155.2	155.2	155.3	90.4	70.2	70.7	155.2	-10 / 35	40.10	4.92	-	71.1
						El. Leistung / Input power [kW]	34.2	34.2	33.9	18.7	13.6	12.9	34.2					
						COP	[-]	4.5	4.5	4.6	4.8	5.2	5.5					
Dolder Wärmetechnik AG Fährenstrasse 3a CH - 9430 St. Margrethen	WP-ZR28-1-R407c.WW	449-23-03	a	R407C	4.5	Heizleistung / Heat. cap. [kW]	6.8	6.8	6.8	6.8	6.9	7.0	6.8	-10 / 35	1.17	4.74	-	51.8
						El. Leistung / Input power [kW]	1.5	1.5	1.5	1.5	1.4	1.3	1.5					
						COP	[-]	4.4	4.4	4.4	4.7	5.0	5.2					
	WP-ZR48-1-R407c.WW	450-23-04	a	R407C	7.7	Heizleistung / Heat. cap. [kW]	12.2	12.2	12.2	12.3	12.5	12.6	12.2	-10 / 35	2.11	5.11	-	49.5
						El. Leistung / Input power [kW]	2.5	2.5	2.6	2.4	2.3	2.2	2.5					
						COP	[-]	4.8	4.8	4.8	5.1	5.3	5.6					
Forstner Speichertechnik GmbH Neulandstrasse 36 A - 6971 Hard	Friopac HP-075/065-KMC	389-17-11	a	R134a	3.8	Heizleistung / Heat. cap. [kW]	6.2	6.2	6.3	6.3	6.3	6.3	6.2	-10 / 35	1.06	4.54	-	53.0
						El. Leistung / Input power [kW]	1.4	1.4	1.4	1.4	1.3	1.3	1.4					
						COP	[-]	4.3	4.3	4.4	4.6	4.8	5.0					
Hautec GmbH An der Molkerei 9 D - 47551 Bedburg-Hau	HCS PN 144	404-19-08	a	R407C	4.7	Heizleistung / Heat. cap. [kW]	32.6	32.6	32.7	33.1	33.3	33.5	32.6	-10 / 35	5.62	4.75	-	59.8
						El. Leistung / Input power [kW]	7.4	7.4	7.3	7.0	6.7	6.4	7.4					
						COP	[-]	4.4	4.4	4.5	4.7	5.0	5.2					
	HCS PN 144/2T	403-19-07	a	R407C	9.4	Heizleistung / Heat. cap. [kW]	33.2	63.4	63.4	34.2	34.3	34.5	63.4	-10 / 35	10.93	4.77	-	63.0
						El. Leistung / Input power [kW]	7.2	15.0	14.9	7.1	6.9	6.6	15.0					
						COP	[-]	4.6	4.2	4.3	4.8	5.0	5.2					
Heim AG Heizsysteme Wittenwilerstrasse 31 CH - 8355 Aadorf	SWE1-8	381-17-03	a	R410A	1.6	Heizleistung / Heat. cap. [kW]	7.4	7.4	7.4	7.5	7.6	7.6	7.4	-7 / 34	1.30	5.02	-	52.3
						El. Leistung / Input power [kW]	1.5	1.5	1.5	1.4	1.4	1.3	1.5					
						COP	[-]	4.8	4.9	4.9	5.2	5.6	5.9					
	SWE1-17	382-17-04	a	R410A	2.5	Heizleistung / Heat. cap. [kW]	16.3	16.4	16.4	16.5	16.6	16.8	16.4	-7 / 34	2.82	4.84	-	51.4
						El. Leistung / Input power [kW]	3.6	3.5	3.5	3.4	3.2	3.1	3.5					
						COP	[-]	4.6	4.6	4.7	4.9	5.2	5.4					
iDM Energiesysteme GmbH Seblas 16-18 A - 9971 Marei in Osttirol	TERRA SW 50 Max H 2.0	427-21-06	a, e	R134a	2x 8.0	Heizleistung / Heat. cap. [kW]	52.7	52.7	53.1	27.6	27.9	28.2	52.7	-10 / 35	9.02	4.67	-	62.5
						El. Leistung / Input power [kW]	12.5	12.5	12.4	5.9	5.7	5.4	12.5					
						COP	[-]	4.2	4.2	4.3	4.7	4.9	5.2					

Prüfresultate Sole/Wasser-Wärmepumpen basierend auf der EN 14511 und EN 14825

Test results of brine to water heat pumps based on EN 14511 and EN 14825

Auftraggeber Customer	Gerät Type	Prüfnummer Test number	Bauart Type of construction	Kältemittel Refrigerant	Kältemittelmenge [kg] Capacity of refrigerant	Prüfbedingungen Test conditions								Bivalentpunkt [°] Bivalent point	Volumenstrom [m³/h] Volume flow	SCOP	Schallleistungspegel aussen [dB(A)] Sound power level outdoor	Schallleistungspegel innen [dB(A)] Sound power level indoor
						low (35°C) - average												
						BO / W30-35	BO / W35 (A-10)	BO / W34 (A-7)	BO / W30 (A2)	BO / W27 (A7)	BO / W24 (A12)	Abiv / W ₀						
IDM Energiesysteme GmbH Seblas 16-18 A - 9971 Marei in Osttirol	TERRA SW 90 Max H 2.0	396-18-07	a, e	R134a	2x 9.0	Heizleistung / Heat. cap. [kW]	88.9	88.9	88.9	46.6	46.8	47.2	88.9	-10 / 35	15.25	4.66	-	65.2
						El. Leistung / Input power [kW]	20.9	20.9	20.8	9.9	9.6	9.3	20.9					
						COP [-]	4.3	4.3	4.3	4.7	4.9	5.1	4.3					
Viessmann (Schweiz) AG Rütimosstrasse 5 CH - 3076 Worb SBB	Vitocal 200-G PRO BW 202.A080	418-20-06	a, e	R410A	9.9	Heizleistung / Heat. cap. [kW]	74.1	74.1	74.5	38.9	39.3	39.5	74.1	-10 / 35	12.80	4.97	-	85.4
						El. Leistung / Input power [kW]	16.9	16.9	16.8	7.8	7.4	7.1	16.9					
						COP [-]	4.4	4.4	4.4	5.0	5.3	5.6	4.4					
Wamak s.r.o. Orovnic 252 SK - 96652 Orovnic	TBW 85 EVI	415-20-03	a, e	R410A	12.9	Heizleistung / Heat. cap. [kW]	41.0	79.2	79.0	78.8	41.8	41.8	79.2	-10 / 35	13.63	4.85	-	66.4
						El. Leistung / Input power [kW]	8.6	17.8	17.7	16.7	7.9	7.5	17.8					
						COP [-]	4.8	4.4	4.5	4.7	5.3	5.6	4.4					
Waterkotte GmbH Gewerkenstrasse 15 D - 44628 Herne	EcoTouch 5010.5 Ai	387-17-09	a	R410A	2.4	Heizleistung / Heat. cap. [kW]	7.6	7.6	7.7	7.7	7.8	7.8	7.6	-10 / 35	1.34	5.35	-	45.3
						El. Leistung / Input power [kW]	1.5	1.5	1.5	1.4	1.3	1.3	1.5					
						COP [-]	5.1	5.1	5.1	5.5	5.8	6.2	5.1					
	EcoTouch 5023.5 Ai	388-17-10	a	R410A	2.6	Heizleistung / Heat. cap. [kW]	17.4	17.4	17.4	17.6	17.8	18.0	17.4	-10 / 35	3.05	5.03	-	46.8
						El. Leistung / Input power [kW]	3.7	3.7	3.7	3.5	3.3	3.2	3.7					
						COP [-]	4.7	4.7	4.8	5.1	5.3	5.6	4.7					
	EcoTouch Geo Inverter 5015.5 Ai	405-19-09	a, e	R410A	2.8	Heizleistung / Heat. cap. [kW]	10.9	10.9	9.6	6.0	3.6	3.5	10.9	-10 / 35	1.84	5.17	-	45.3
						El. Leistung / Input power [kW]	2.5	2.5	2.1	1.1	0.6	0.6	2.5					
						COP [-]	4.4	4.4	4.6	5.3	5.8	6.2	4.4					

Bauart / Type of construction

- a Kompaktwärmepumpe für Innenaufstellung / Compact heat pump for indoor installation
- b Kompaktwärmepumpe für Aussenaufstellung / Compact heat pump for outdoor installation
- c Splitwärmepumpe / Split heat pump
- d Leistungsgeregelte Wärmepumpe mit Frequenzumformer / Output-modulated heat pump with frequency converter
- e Leistungsgeregelte Wärmepumpe mit mehreren Kompressoren / Output-modulated heat pump with several compressors

Abkürzungen / Abbreviations

- B Soletemperatur / Brine temperature
- W Wassertemperatur / Water temperature
- r. H. relative Luftfeuchtigkeit / relative humidity
- V_{xy} Durchflussrate / Volume flow rate

Schallleistungspegel aussen / Sound power level outdoor:

bezieht sich auf das Geräusch draussen (wird vom Nachbar wahrgenommen) / it relates to the outside noise (is perceived by the neighbor)

Schallleistungspegel innen / Sound power level indoor:

bezieht sich auf das Geräusch drinnen (z.B. im Aufstellungsraum) / it relates to the indoor noise (e.g. in the installation room)

Prüfresultate Sole/Wasser-Wärmepumpen basierend auf der EN 14511 und EN 14825

Test results of brine to water heat pumps based on EN 14511 and EN 14825

Auftraggeber Customer	Gerät Type	Prüfnummer Test number	Bauart Type of construction	Kältemittel Refrigerant	Kältemittelmenge [kg] Capacity of refrigerant	Prüfbedingungen Test conditions								Bivalentpunkt [°] Bivalent point	Volumenstrom [m³/h] Volume flow	SCOP	Schallleistungspegel aussen [dB(A)] Sound power level outdoor	Schallleistungspegel innen [dB(A)] Sound power level indoor
						medium (55°C) - average												
						BO / W47-55	BO / W55 (A-10)	BO / W52 (A-7)	BO / W42 (A2)	BO / W36 (A7)	BO / W30 (A12)	Abiv / W ₀						
CTA AG Hunzigenstrasse 1 CH - 3110 Münsingen	Optipro OP 110ed	416-20-04	a, e	R410A	2x 8.8	Heizleistung / Heat. cap. [kW]	102.0	102.0	102.6	53.4	54.3	55.0	102.0	-10 / 55	11.00	3.86	-	73.6
						El. Leistung / Input power [kW]	34.8	34.8	33.1	13.8	12.5	11.5	34.8					
						COP [-]	2.9	2.9	3.1	3.9	4.3	4.8	2.9					
	Optipro OP 160ed	417-20-05	a, e	R410A	15.4	Heizleistung / Heat. cap. [kW]	146.5	146.5	146.8	86.2	67.7	68.7	146.5	-10 / 55	31.90	3.88	-	71.1
						El. Leistung / Input power [kW]	50.0	50.0	47.1	22.7	15.4	14.0	50.0					
						COP [-]	2.9	2.9	3.1	3.8	4.4	4.9	2.9					
Dolder Wärmetechnik AG Fährenstrasse 3a CH - 9430 St. Margrethen	WP-ZR28-1-R407c.WW	449-23-03	a	R407C	4.5	Heizleistung / Heat. cap. [kW]	6.2	6.2	6.2	6.5	6.6	6.8	6.2	-10 / 55	0.66	3.44	-	51.8
						El. Leistung / Input power [kW]	2.4	2.4	2.3	1.9	1.7	1.5	2.4					
						COP [-]	2.6	2.6	2.7	3.4	3.9	4.4	2.6					
	WP-ZR48-1-R407c.WW	450-23-04	a	R407C	7.7	Heizleistung / Heat. cap. [kW]	11.1	11.1	11.3	11.7	11.9	12.2	11.1	-10 / 55	1.19	3.77	-	49.5
						El. Leistung / Input power [kW]	3.8	3.8	3.7	3.1	2.8	2.6	3.8					
						COP [-]	2.9	2.9	3.0	3.7	4.2	4.8	2.9					
Forstner Speichertechnik GmbH Neulandstrasse 36 A - 6971 Hard	Friopac HP-075/065-KMC	389-17-11	a	R134a	3.8	Heizleistung / Heat. cap. [kW]	5.5	5.5	5.8	6.0	-	-	5.5	-10 / 55	0.60	-	-	53.0
						El. Leistung / Input power [kW]	1.9	1.9	1.9	1.7	-	-	1.9					
						COP [-]	2.8	2.8	3.1	3.6	-	-	2.8					
Hautec GmbH An der Molkerei 9 D - 47551 Bedburg-Hau	HCS PN 144	404-19-08	a	R407C	4.7	Heizleistung / Heat. cap. [kW]	30.3	30.3	30.3	30.9	-	-	30.3	-10 / 55	3.24	-	-	59.8
						El. Leistung / Input power [kW]	10.6	10.6	10.1	8.8	-	-	10.6					
						COP [-]	2.9	2.9	3.0	3.5	-	-	2.9					
	HCS PN 144/2T	403-19-07	a	R407C	9.4	Heizleistung / Heat. cap. [kW]	30.6	59.3	59.6	32.8	-	-	59.3	-10 / 55	6.42	-	-	63.0
						El. Leistung / Input power [kW]	10.3	21.5	20.6	8.6	-	-	21.5					
						COP [-]	3.0	2.8	2.9	3.8	-	-	2.8					
Heim AG Heizsysteme Wittenwilerstrasse 31 CH - 8355 Aadorf	SWE1-8	381-17-03	a	R410A	1.6	Heizleistung / Heat. cap. [kW]	6.9	6.7	6.9	7.1	-	-	6.9	-7 / 52	0.76	-	-	52.3
						El. Leistung / Input power [kW]	2.4	2.3	2.2	1.9	-	-	2.2					
						COP [-]	2.9	2.9	3.1	3.7	-	-	3.1					
	SWE1-17	382-17-04	a	R410A	2.5	Heizleistung / Heat. cap. [kW]	15.6	15.6	15.5	15.8	-	-	15.5	-7 / 52	1.69	-	-	51.4
						El. Leistung / Input power [kW]	5.3	5.1	5.0	4.3	-	-	5.0					
						COP [-]	3.0	3.0	3.1	3.6	-	-	3.1					
iDM Energiesysteme GmbH Seblas 16-18 A - 9971 Marei in Osttirol	TERRA SW 50 Max H 2.0	427-21-06	a, e	R134a	2x 8.0	Heizleistung / Heat. cap. [kW]	51.5	51.5	51.8	26.7	-	-	51.5	-10 / 55	5.55	-	-	62.5
						El. Leistung / Input power [kW]	18.0	18.0	17.3	7.3	-	-	18.0					
						COP [-]	2.9	2.9	3.0	3.7	-	-	2.9					

Prüfresultate Sole/Wasser-Wärmepumpen basierend auf der EN 14511 und EN 14825

Test results of brine to water heat pumps based on EN 14511 and EN 14825

Auftraggeber Customer	Gerät Type	Prüfnummer Test number	Bauart Type of construction	Kältemittel Refrigerant	Kältemittelmenge [kg] Capacity of refrigerant	Prüfbedingungen Test conditions	medium (55°C) - average								Bivalentpunkt [°] Bivalent point	Volumenstrom [m³/h] Volume flow	SCOP	Schallleistungspegel aussen [dB(A)] Sound power level outdoor	Schallleistungspegel innen [dB(A)] Sound power level indoor
							BO / W47-55	BO / W55 (A-10)	BO / W52 (A-7)	BO / W42 (A2)	BO / W36 (A7)	BO / W30 (A12)	Abiv / W ₀						
IDM Energiesysteme GmbH Seblas 16-18 A - 9971 Marei in Osttirol	TERRA SW 90 Max H 2.0	396-18-07	a, e	R134a	2x 9.0	Heizleistung / Heat. cap. [kW]	84.1	84.1	84.0	44.9	45.1	45.4	84.1	-10 / 55	9.06	3.66	-	65.2	
						El. Leistung / Input power [kW]	30.0	30.0	28.8	12.3	11.2	10.3	30.0						
						COP [-]	2.8	2.8	2.9	3.7	4.0	4.4	2.8						
Viessmann (Schweiz) AG Rütimosstrasse 5 CH - 3076 Worb SBB	Vitocal 200-G PRO BW 202.A080	418-20-06	a, e	R410A	9.9	Heizleistung / Heat. cap. [kW]	72.2	72.2	73.6	36.9	37.6	38.3	72.2	-10 / 55	7.75	3.82	-	85.4	
						El. Leistung / Input power [kW]	24.9	24.9	23.8	9.6	8.7	8.0	24.9						
						COP [-]	2.9	2.9	3.1	3.8	4.3	4.8	2.9						
Wamak s.r.o. Orovnic 252 SK - 96652 Orovnic	TBW 85 EVI	415-20-03	a, e	R410A	12.9	Heizleistung / Heat. cap. [kW]	41.1	79.9	79.4	42.7	42.3	42.1	79.9	-10 / 55	8.59	4.08	-	66.4	
						El. Leistung / Input power [kW]	12.9	26.9	25.7	10.3	9.3	8.4	26.9						
						COP [-]	3.2	3.0	3.1	4.2	4.6	5.0	3.0						
Waterkotte GmbH Gewerkenstrasse 15 D - 44628 Herne	EcoTouch 5010.5 Ai	387-17-09	a	R410A	2.4	Heizleistung / Heat. cap. [kW]	7.1	7.1	7.1	7.3	-	-	7.1	-10 / 55	0.77	-	-	45.3	
						El. Leistung / Input power [kW]	2.3	2.3	2.2	1.9	-	-	2.3						
						COP [-]	3.1	3.1	3.3	3.8	-	-	3.1						
	EcoTouch 5023.5 Ai	388-17-10	a	R410A	2.6	Heizleistung / Heat. cap. [kW]	16.2	16.2	16.4	16.8	-	-	16.2	-10 / 55	1.76	-	-	46.8	
						El. Leistung / Input power [kW]	5.4	5.4	5.1	4.5	-	-	5.4						
						COP [-]	3.0	3.0	3.2	3.7	-	-	3.0						
	EcoTouch Geo Inverter 5015.5 Ai	405-19-09	a, e	R410A	2.8	Heizleistung / Heat. cap. [kW]	9.9	9.9	8.9	5.5	3.5	3.4	16.2	-10 / 55	1.07	3.94	-	45.3	
						El. Leistung / Input power [kW]	3.4	3.4	2.8	1.4	0.8	0.7	5.4						
						COP [-]	3.0	3.0	3.2	4.0	4.5	5.1	3.0						

Bauart / Type of construction

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Abkürzungen / Abbreviations

- B Lufttemperatur / Air temperature
- W Wassertemperatur / Water temperature
- r. H. relative Luftfeuchtigkeit / relative humidity
- V_{xy} Durchflussrate / Volume flow rate

Schallleistungspegel aussen / Sound power level outdoor:

bezieht sich auf das Geräusch draussen (wird vom Nachbar wahrgenommen) / it relates to the outside noise (is perceived by the neighbor)

Schallleistungspegel innen / Sound power level indoor:

bezieht sich auf das Geräusch drinnen (z.B. im Aufstellungsraum) / it relates to the indoor noise (e.g. in the installation room)

Prüfresultate Wasser/Wasser-Wärmepumpen basierend auf der EN 14511 und EN 14825

Test results of water to water heat pumps based on EN 14511 and EN 14825

Auftraggeber Customer	Gerät Type	Prüfnummer Test number	Bauart Type of construction	Kältemittel Refrigerant	Kältemittelmenge [kg] Capacity of refrigerant	Prüfbedingungen Test conditions										Bivalentpunkt [°] Bivalent point	Volumenstrom [m³/h] Volume flow	SCOP	Schallleistungspegel aussen [dB(A)] Sound power level outdoor	Schallleistungspegel innen [dB(A)] Sound power level indoor
						low (35°C) - average														
						W10 / W30-35	W10 / W35 (A-10)	W10 / W34 (A-7)	W10 / W30 (A2)	W10 / W27 (A7)	W10 / W24 (A12)	Abiv / W ₀								
CTA AG Hunzigenstrasse 1 CH - 3110 Münsingen	Optipro OP 110ed	245-20-07	a, e	R410A	2x 8.8	Heizleistung / Heat. cap. [kW]	140.9	140.9	141.1	142.0	74.1	74.8	140.9	-10 / 35	24.20	6.17	-	73.6		
						El. Leistung / Input power [kW]	24.9	24.9	24.5	23.4	11.3	10.9	24.9							
						COP	-	5.7	5.7	5.8	6.1	6.5	6.9						5.7	
	Optipro OP 160ed	246-20-08	a, e	R410A	15.4	15.6	Heizleistung / Heat. cap. [kW]	202.9	202.9	203.3	118.1	95.8	96.6	202.9	-10 / 35	34.80	6.08	-	71.1	
							El. Leistung / Input power [kW]	36.1	36.1	35.7	20.3	14.4	13.8	36.1						
							COP	-	5.6	5.6	5.7	5.8	6.7	7.0						5.6
Dolder Wärmetechnik AG Fährenstrasse 3a CH - 9430 St. Margrethen	WP-ZR28-1-R407c.WW	268-23-07	a	R407C	4.5	Heizleistung / Heat. cap. [kW]	9.5	9.5	9.5	9.7	9.8	10.0	9.5	-10 / 35	1.63	6.93	-	51.8		
						El. Leistung / Input power [kW]	1.5	1.5	1.5	1.4	1.3	1.3	1.5							
						COP	-	6.3	6.3	6.4	6.9	7.3	7.8						6.3	
	WP-ZR48-1-R407c.WW	289-23-08	a	R407C	7.7	Heizleistung / Heat. cap. [kW]	16.7	16.7	16.7	17.0	17.2	17.3	16.7	-10 / 35	2.86	7.15	-	49.5		
						El. Leistung / Input power [kW]	2.6	2.6	2.5	2.4	2.3	2.2	2.6							
						COP	-	6.5	6.5	6.6	7.1	7.5	7.9						6.5	
IDM Energiesysteme GmbH Seblas 16-18 A - 9971 Marei in Osttirol	TERRA SW 50 Max H 2.0	249-21-01	a, e	R134a	2x 8.0	Heizleistung / Heat. cap. [kW]	72.8	72.8	73.0	38.7	39.1	39.6	72.8	-10 / 35	12.47	6.18	-	62.5		
						El. Leistung / Input power [kW]	13.0	13.0	12.9	6.2	6.0	5.8	13.0							
						COP	-	5.6	5.6	5.7	6.2	6.5	6.8						5.6	
	TERRA SW 90 Max H 2.0	220-18-10	a, e	R134a	2x 9.0	Heizleistung / Heat. cap. [kW]	122.9	122.9	122.7	65.2	64.5	65.3	122.9	-10 / 35	21.10	5.99	-	65.2		
						El. Leistung / Input power [kW]	22.3	22.3	22.1	10.9	10.3	10.0	22.3							
						COP	-	5.5	5.5	5.5	6.0	6.3	6.5						5.5	
Wamak s.r.o. Orovnic 252 SK - 96652 Orovnic	TBW 85 EVI	244-20-06	a, e	R410A	12.9	Heizleistung / Heat. cap. [kW]	52.7	103.1	103.4	102.5	51.6	52.1	103.1	-10 / 35	17.70	6.19	-	66.4		
						El. Leistung / Input power [kW]	8.5	17.9	17.8	16.7	7.9	7.6	17.9							
						COP	-	6.2	5.8	5.8	6.1	6.6	6.8						5.8	
Waterkotte GmbH Gewerkenstrasse 15 D - 44628 Herne	EcoTouch 5010.5 Ai	209-17-17	a	R410A	2.4	Heizleistung / Heat. cap. [kW]	10.3	10.3	10.3	10.4	10.6	10.6	10.3	-10 / 35	1.79	7.51	-	45.3		
						El. Leistung / Input power [kW]	1.5	1.5	1.4	1.4	1.3	1.2	1.5							
						COP	-	7.0	7.1	7.2	7.7	8.2	8.8						7.1	
	EcoTouch 5023.5 Ai	210-17-18	a	R410A	2.6	Heizleistung / Heat. cap. [kW]	22.9	22.9	23.3	23.5	23.7	24.0	22.9	-10 / 35	3.98	6.38	-	46.8		
						El. Leistung / Input power [kW]	3.9	3.9	3.8	3.7	3.5	3.4	3.9							
						COP	-	5.9	5.9	6.1	6.4	6.7	7.1						5.9	
	EcoTouch Geo Inverter 5015.5 Ai	229-19-06	a	R410A	2.8	Heizleistung / Heat. cap. [kW]	14.6	14.6	13.0	8.0	5.2	4.3	14.6	-10 / 35	2.52	7.11	-	45.3		
						El. Leistung / Input power [kW]	2.6	2.6	2.1	1.1	0.7	0.6	2.6							
						COP	-	5.7	5.7	6.1	7.5	7.7	7.6						5.7	

Prüfresultate Wasser/Wasser-Wärmepumpen basierend auf der EN 14511 und EN 14825

Test results of water to water heat pumps based on EN 14511 and EN 14825

Auftraggeber Customer	Gerät Type	Prüfnummer Test number	Bauart Type of construction	Kältemittel Refrigerant	Kältemittelmenge [kg] Capacity of refrigerant	Prüfbedingungen Test conditions		medium (55°C) - average								Bivalentpunkt [°] Bivalent point	Volumenstrom [m³/h] Volume flow	SCOP	Schallleistungspegel aussen [dB(A)] Sound power level outdoor	Schallleistungspegel innen [dB(A)] Sound power level indoor
						Heizleistung / Heat. cap. [kW]	El. Leistung / Input power [kW]	W10 / W47-55	W10 / W55 (A-10)	W10 / W52 (A-7)	W10 / W42 (A2)	W10 / W36 (A7)	W10 / W30 (A12)	Abiv / W ₀						
CTA AG Hunzigenstrasse 1 CH - 3110 Münsingen	Optipro OP 110ed	245-20-07	a, e	R410A	2x 8.8	Heizleistung / Heat. cap. [kW]	133.8	133.8	134.6	70.4	71.5	72.6	133.8	-10 / 55	14.40	4.85	-	73.6		
						El. Leistung / Input power [kW]	36.0	36.0	34.5	14.5	13.2	12.0	36.0							
						COP [-]	3.7	3.7	3.9	4.9	5.4	6.0	3.7							
	Optipro OP 160ed	246-20-08	a, e	R410A	15.4	Heizleistung / Heat. cap. [kW]	186.9	186.9	186.4	110.9	90.4	93.0	186.9	-10 / 55	20.00	4.68	-	71.1		
						El. Leistung / Input power [kW]	51.0	51.0	51.5	24.7	16.4	14.8	51.0							
						COP [-]	3.7	3.7	3.6	4.5	5.5	6.3	3.7							
Dolder Wärmetechnik AG Fährenstrasse 3a CH - 9430 St. Margrethen	WP-ZR28-1-R407c.WW	268-23-07	a	R407C	4.5	Heizleistung / Heat. cap. [kW]	8.5	8.5	8.6	9.0	9.3	9.5	8.5	-10 / 55	0.92	4.89	-	51.8		
						El. Leistung / Input power [kW]	2.3	2.3	2.2	1.9	1.7	1.5	2.3							
						COP [-]	3.6	3.6	3.9	4.8	5.5	6.3	3.6							
	WP-ZR48-1-R407c.WW	289-23-08	a	R407C	7.7	Heizleistung / Heat. cap. [kW]	15.0	15.0	15.2	15.9	16.4	16.8	15.0	-10 / 55	1.61	5.24	-	49.5		
						El. Leistung / Input power [kW]	3.8	3.8	3.6	3.1	2.8	2.5	3.8							
						COP [-]	3.9	3.9	4.2	5.2	5.9	6.7	3.9							
IDM Energiesysteme GmbH Seblas 16-18 A - 9971 Marei in Osttirol	TERRA SW 50 Max H 2.0	249-21-01	a, e	R134a	2x 8.0	Heizleistung / Heat. cap. [kW]	68.2	68.2	68.5	36.4	-	-	68.2	-10 / 55	7.35	-	-	62.5		
						El. Leistung / Input power [kW]	18.8	18.8	18.1	7.6	-	-	18.8							
						COP [-]	3.6	3.6	3.8	4.8	-	-	3.6							
	TERRA SW 90 Max H 2.0	220-18-10	a, e	R134a	2x 9.0	Heizleistung / Heat. cap. [kW]	111.9	111.9	112.6	61.3	62.4	63.6	111.9	-10 / 55	12.03	4.71	-	65.2		
						El. Leistung / Input power [kW]	31.8	31.8	30.4	13.0	12.0	11.1	31.8							
						COP [-]	3.5	3.5	3.7	4.7	5.2	5.7	3.5							
Wamak s.r.o. Orovnic 252 SK - 96652 Orovnic	TBW 85 EVI	244-20-06	a, e	R410A	12.9	Heizleistung / Heat. cap. [kW]	53.0	104.0	104.2	104.3	53.1	51.0	104.0	-10 / 55	11.18	4.89	-	66.4		
						El. Leistung / Input power [kW]	13.0	27.5	26.2	22.0	9.4	8.3	27.5							
						COP [-]	4.1	3.8	4.0	4.7	5.7	6.2	3.8							
Waterkotte GmbH Gewerkenstrasse 15 D - 44628 Herne	EcoTouch 5010.5 Ai	209-17-17	a	R410A	2.4	Heizleistung / Heat. cap. [kW]	9.2	9.2	9.3	9.7	-	-	9.2	-10 / 55	1.01	-	-	45.3		
						El. Leistung / Input power [kW]	2.4	2.4	2.2	1.9	-	-	2.4							
						COP [-]	3.9	3.9	4.2	5.1	-	-	3.9							
	EcoTouch 5023.5 Ai	210-17-18	a	R410A	2.6	Heizleistung / Heat. cap. [kW]	21.2	21.3	21.5	22.1	-	-	21.3	-10 / 55	2.29	-	-	46.8		
						El. Leistung / Input power [kW]	5.6	5.6	5.4	4.7	-	-	5.6							
						COP [-]	3.8	3.8	4.0	4.8	-	-	3.8							
EcoTouch Geo Inverter 5015.5 Ai	229-19-06	a	R410A	2.8	Heizleistung / Heat. cap. [kW]	13.1	13.1	11.7	7.1	4.6	4.6	13.1	-10 / 55	1.41	5.32	-	45.3			
					El. Leistung / Input power [kW]	3.6	3.6	2.9	1.3	0.7	0.6	3.6								
					COP [-]	3.6	3.6	4.0	5.3	6.3	7.5	3.6								

Prüfresultate Wasser/Wasser-Wärmepumpen basierend auf der EN 14511 und EN 14825

Test results of water to water heat pumps based on EN 14511 and EN 14825

Auftraggeber Customer	Gerät Type	Prüfbedingungen Test conditions	medium (55°C) - average	
	Prüfnummer Test number Bauart Type of construction Kältemittel Refrigerant Kältemittelmenge [kg] Capacity of refrigerant		W10 / W47-55 W10 / W55 (A-10) W10 / W52 (A-7) W10 / W42 (A2) W10 / W36 (A7) W10 / W30 (A12) Abiv / W_ _ 0	Bivalentpunkt [°] Bivalent point Volumenstrom [m³/h] Volume flow SCOP Schalleistungspegel aussen [dB(A)] Sound power level outdoor Schalleistungspegel innen [dB(A)] Sound power level indoor

Bauart / Type of construction

- a Kompaktwärmepumpe für Innenaufstellung / Compact heat pump for indoor installation
- b Kompaktwärmepumpe für Aussenaufstellung / Compact heat pump for outdoor installation
- c Splitwärmepumpe / Split heat pump
- d Leistungsgeregelte Wärmepumpe mit Frequenzumformer / Output-modulated heat pump with frequency converter
- e Leistungsgeregelte Wärmepumpe mit mehreren Kompressoren / Output-modulated heat pump with several compressors

Abkürzungen / Abbreviations

- B Soletemperatur / Brine temperature
- W Wassertemperatur / Water temperature
- r. H. relative Luftfeuchtigkeit / relative humidity
- V Durchflussrate / Volume flow rate

Schalleistungspegel aussen / Sound power level outdoor:

bezieht sich auf das Geräusch draussen (wird vom Nachbar wahrgenommen) / it relates to the outside noise (is perceived by the neighbor)

Schalleistungspegel innen / Sound power level indoor:

bezieht sich auf das Geräusch drinnen (z.B. im Aufstellungsraum) / it relates to the indoor noise (e.g. in the installation room)

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										Schalleistungspegel innen [dB(A)] Sound power level indoor	Prüfbedingungen Wasser-Wasser Test conditions water to water									
						Volumenstromereinstellung Volume flow adjustment		V ₃₅		V ₄₅		V ₅₅		Volumenstrom [m³/h] Volume flow	Volumenstromereinstellung 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					
Hoval Aktiengesellschaft Austrasse 70 FL - 9490 Vaduz						Heizleistung / Heat. cap. [kW]											-	Heizleistung / Heat. cap. [kW]								
						El. Leistung / Input power [kW]													El. Leistung / Input power [kW]							
						COP [-]													COP (1 Compressor) [-]							
	Thermalia twin (35) <i>Thermalia twin (35)</i>	319-12-18 148-13-02	S	R407C	6.0	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	
							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	80 / W62	COP (2 Compressors) [-]	5.9	5.6	4.9	4.4	4.0	3.7	4.59	
	Thermalia twin (35)	319-12-18	S	R407C	6.0		Heizleistung / Heat. cap. [kW]		18.2					15.5		6.05		Heizleistung / Heat. cap. [kW]								
							El. Leistung / Input power [kW]		4.1				4.9		5.6	5.80	62	El. Leistung / Input power [kW]								
							COP (1 Compressor) [-]		4.4			3.4	2.7		3.51	80 / W62	COP [-]									
	Thermalia comfort H (10) <i>Thermalia comfort H (10)</i>	354-15-04 177-15-04	S	R134a	3.8	3.8	Heizleistung / Heat. cap. [kW]	10.6	9.1	7.8	10.1	8.7	9.9	8.5	7.3	1.59		Heizleistung / Heat. cap. [kW]	14.8	12.8	14.0	12.1	13.5	11.8	2.21	
							El. Leistung / Input power [kW]	2.0	2.0	2.0	2.4	2.3	2.8	2.7	2.6	1.51	52	El. Leistung / Input power [kW]	2.2	2.1	2.6	2.5	3.0	2.9	2.11	
							COP [-]	5.2	4.6	4.0	4.2	3.7	3.5	3.2	2.8	0.94	80 / W55	COP [-]	6.6	6.0	5.4	4.8	4.5	4.0	1.29	
Kermi GmbH Pankofen Bahnhof 1 D - 94447 Plattling	x-change WPS 10 (Compressor: 129 Hz)	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		Heizleistung / Heat. cap. [kW]									
						El. Leistung / Input power [kW]	2.1	2.1	2.1	2.6	2.6	3.1	3.1	3.1	1.47	44	El. Leistung / Input power [kW]									
						COP [-]	5.2	4.4	3.7	3.9	3.3	3.0	2.6	2.2	0.87	80 / W63	COP [-]									
Multi Energie AG Wiesentalstrasse 20 CH - 8355 Aadorf	FSW 5.3	312-12-11	S	R407C	2.4	Siehe / see CTC Giersch AG, MSW 8																				
	FWW 5.3	160-12-07	S	R407C	2.4	Siehe / see CTC Giersch AG, MWW 8																				
Sapca SA Mühleweg 2 CH - 1734 Tentlingen	PCO 26	339-13-20 171-13-12	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		
						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		
						COP [-]	5.0	4.5	3.9	3.9	3.5	3.2	2.9	2.5	1.01	80 / W55	COP [-]	5.7	5.5	4.9	4.3	4.0	3.6	1.33		
	PCO 75	340-13-21 172-13-13	S	R407C	7.5	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		
						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	80 / W55	COP [-]	5.6	5.3	4.8	4.4	4.2	3.7	4.00		
Striega-Therm AG Breitenstrasse 10 CH - 4852 Rothrist	SWU 8	322-13-03 163-13-04	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		
						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		
						COP [-]	5.0	4.5	4.0	3.9	3.5	3.3	2.9	2.6	0.81	80 / W55	COP [-]	5.9	5.5	4.7	4.4	4.0	3.6	1.03		
SWU 14	323-13-04 164-13-05	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			
					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	80 / W55	COP [-]	5.9	5.4	4.8	4.3	4.0	3.6	1.79			

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										Schalleistungspegel innen [dB(A)] Sound power level indoor	Prüfbedingungen Wasser-Wasser Test conditions water to water																	
						Volumenstromereinstellung Volume flow adjustment			V ₃₅			V ₄₅			V ₅₅			Volumenstrom [m ³ /h] Volume flow	Volumenstromereinstellung Volume flow adjustment			V ₃₅			V ₄₅			V ₅₅		Volumenstrom [m ³ /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													
Thermolink AG Wittenwilerstrasse 31a CH - 8355 Aadorf	FSW 19.3	359-15-09	S	R407C	5.0	Heizleistung / Heat. cap. [kW]	32.2	28.5	24.5	30.5	25.8	28.6	25.0	21.3	4.93	63	Heizleistung / Heat. cap. [kW]																	
						El. Leistung / Input power [kW]	6.8	6.5	6.3	7.8	7.4	8.7	8.4	7.9	4.55		El. Leistung / Input power [kW]																	
						COP		4.8	4.4	3.9	3.9	3.5	3.3	3.0	2.7		2.73	COP																
Viessmann (Schweiz) AG Industriestrasse 124 CH - 8957 Spreitenbach	E-Natura 350-G 33kW BWH351.A33	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	55	Heizleistung / Heat. cap. [kW]																	
						El. Leistung / Input power [kW]	6.5	6.6	6.7	8.3	8.5	10.3	10.4	10.4	5.80		El. Leistung / Input power [kW]																	
						COP		5.6	5.0	4.4	4.4	3.9	3.7	3.3	3.0		3.72	COP																
Viessmann (Schweiz) AG Industriestrasse 124 CH - 8957 Spreitenbach	E-Natura 350-G 41kW WWH351.A41	161-13-01	S	R410A	9.1	Heizleistung / Heat. cap. [kW]									55	Heizleistung / Heat. cap. [kW]	43.3	42.2	43.3	42.0	43.5	42.5	7.29	80 / W65	Heizleistung / Heat. cap. [kW]									
						El. Leistung / Input power [kW]											7.0	6.8	9.0	8.6	11.0	10.6	7.29		El. Leistung / Input power [kW]									
						COP																												
E-Natura 350-G 54kW BWH352.A54	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	58	Heizleistung / Heat. cap. [kW]																		
					El. Leistung / Input power [kW]	11.4	11.7	11.8	14.5	14.7	17.5	17.8	17.8	10.00		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	COP																	
E-Natura 350-G 54kW BWH352.A54	333-13-14	S	R410A	2x 7.3	Heizleistung / Heat. cap. [kW]	31.5	28.4	25.4	31.8	28.7	32.1	29.0	26.2	4.94	56	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		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	COP																	
E-Natura 350-G 68kW WWH352.A68	168-13-09	S	R410A	2x 7.3	Heizleistung / Heat. cap. [kW]									58	Heizleistung / Heat. cap. [kW]	74.9	72.4	74.5	72.2	75.3	72.5	12.56	80 / W65	Heizleistung / Heat. cap. [kW]										
					El. Leistung / Input power [kW]											11.9	11.5	15.2	14.7	18.4	17.8	12.53		El. Leistung / Input power [kW]										
					COP (2 Compressors)																													
E-Natura 350-G 68kW WWH352.A68	168-13-09	S	R410A	2x 7.3	Heizleistung / Heat. cap. [kW]									56	Heizleistung / Heat. cap. [kW]	37.4	36.0	37.3	35.9	37.6	36.0	6.25	80 / W65	Heizleistung / Heat. cap. [kW]										
					El. Leistung / Input power [kW]											5.9	5.8	7.6	7.3	9.2	8.8	6.25		El. Leistung / Input power [kW]										
					COP (1 Compressor)																													
Viessmann Wärmepumpen GmbH Viessmannstrasse 1 D - 35108 Allendorf	Vitocal 300-G BW 301.A45 Vitocal 300-G BW 301.A45	328-13-09 166-13-07	S	R410A	10.0 10.0	Heizleistung / Heat. cap. [kW]	50.9	44.4	37.7	47.7	41.9	45.9	40.3	35.7	7.66	51	Heizleistung / Heat. cap. [kW]	68.0	59.5	63.1	55.6	60.1	53.1	10.28	80 / W60	Heizleistung / Heat. cap. [kW]								
						El. Leistung / Input power [kW]	9.8	9.7	9.7	11.7	11.7	13.5	13.6	13.5	7.28		El. Leistung / Input power [kW]	10.6	10.4	12.2	12.1	14.0	14.0	9.66		El. Leistung / Input power [kW]								
						COP		5.2	4.6	4.0	4.1	3.6	3.4	3.0	2.6		4.40	COP																
Waterkotte GmbH Gewerkenstrasse 15 D - 44628 Herne	Basic Line Ai1 Geo 5006.5A Basic Line Ai1 Geo 5006.5A	355-15-05 178-15-05	S	R410A	1.8 1.8	Heizleistung / Heat. cap. [kW]	6.4	5.6	4.8	6.0	5.3	5.9	5.2	4.5	0.98	45	Heizleistung / Heat. cap. [kW]	8.6	7.5	7.7	7.0	7.5	6.9	1.31	80 / W55	Heizleistung / Heat. cap. [kW]								
						El. Leistung / Input power [kW]	1.2	1.2	1.2	1.5	1.5	1.8	1.8	1.8	0.94		El. Leistung / Input power [kW]	1.2	1.2	1.5	1.5	1.8	1.9	1.22		El. Leistung / Input power [kW]								
						COP		5.3	4.6	4.1	4.0	3.6	3.2	2.8	2.5		0.56	COP																
EcoTouch DS 5034.5T EcoTouch DS 5034.5T	360-15-10 180-15-07	S	R410A	4.0 4.0	Heizleistung / Heat. cap. [kW]	29.1	25.6	22.3	27.8	24.5	27.2	23.6	20.4	4.52	60	Heizleistung / Heat. cap. [kW]	37.1	33.0	35.4	31.9	34.7	31.0	5.77	80 / W55	Heizleistung / Heat. cap. [kW]									
					El. Leistung / Input power [kW]	5.7	5.7	5.7	7.1	7.1	8.5	8.5	8.5	4.30		El. Leistung / Input power [kW]	5.7	5.8	7.1	7.2	8.6	8.6	5.61		El. Leistung / Input power [kW]									
					COP		5.1	4.5	3.9	3.9	3.5	3.2	2.8	2.4		2.59	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											Schalleistungspegel innen [dB(A)] Sound power level indoor	Prüfbedingungen Wasser-Wasser Test conditions water to water					
						Volumenstromereinstellung Volume flow adjustment												Volumenstromereinstellung Volume flow adjustment					
						V ₃₅			V ₄₅			V ₅₅						Volumenstrom [m ³ /h] Volume flow	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	W15 / W35	W10 / W35 - 30	W15 / W45	W10 / W45 - 40	W15 / W55	W10 / W55 - 47										
Wolf-Technik GmbH Hattstedter Strasse 9 D - 25860 Horstedt/Husum	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	48	Heizleistung / Heat. cap. [kW]						
						El. Leistung / Input power [kW]	1.8	1.8	1.8	2.2	2.1	2.5	2.5	2.5	1.29		El. Leistung / Input power [kW]						
						COP [-]	4.9	4.4	3.9	3.9	3.5	3.2	2.8	2.5	0.77		80 / W55	COP [-]					
	Aqua-Plus 10/10	348-14-05	S	R407C	2.9	Heizleistung / Heat. cap. [kW]	22.6	19.6	17.1	21.3	18.5	20.4	17.9	15.5	3.41	56	Heizleistung / Heat. cap. [kW]						
						El. Leistung / Input power [kW]	4.6	4.5	4.5	5.5	5.4	6.3	6.2	6.0	3.22		El. Leistung / Input power [kW]						
						COP (2 Compressors) [-]	4.9	4.3	3.8	3.9	3.4	3.2	2.9	2.6	1.94		80 / W55	COP [-]					
	Aqua-Plus 10/10	348-14-05	S	R407C	2.9	Heizleistung / Heat. cap. [kW]		10.3				9.7			1.78	-	Heizleistung / Heat. cap. [kW]						
						El. Leistung / Input power [kW]		2.2			2.6		3.0	1.68	El. Leistung / Input power [kW]								
						COP (1 Compressor) [-]		4.6			3.7		3.0	1.00	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								Volumenstrom [m³/h] Volume flow	Schalleistungspegel innen [dB(A)] Sound power level indoor	Prüfbedingungen Wasser-Wasser Test conditions water to water										
						B5 / W35	B0 / W35 - 30	B5 / W45	B0 / W45	B-5 / W45	B5 / W55	B0 / W55	W10 / W35 - 30			W15 / W45	W10 / W45	W15 / W55	W10 / W55	Volumenstrom [m³/h] Volume flow						
Alpha-InnoTec GmbH Industriestrasse 3 D - 95359 Kasendorf	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	1.6	50	Heizleistung / Heat. cap. [kW]										
						El. Leistung / Input power [kW]	2.1	2.1	2.5	2.5	2.5	3.1	3.0			El. Leistung / Input power [kW]										
						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	2.4	49	Heizleistung / Heat. cap. [kW]										
						El. Leistung / Input power [kW]	3.2	3.2	4.0	3.9	3.9	4.8	4.8			El. Leistung / Input power [kW]										
						COP [-]	5.0	4.4	3.9	3.4	2.9	3.1	2.7			COP [-]										
BARTL Wärmepumpen Wörthstrasse 13/1 D - 89077 Ulm	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	1.4	46	Heizleistung / Heat. cap. [kW]										
						El. Leistung / Input power [kW]	1.9	1.9	2.3	2.3	2.2	2.8	2.8			El. Leistung / Input power [kW]										
						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	1.4	48	Heizleistung / Heat. cap. [kW]										
						El. Leistung / Input power [kW]	1.9	1.8	2.2	2.2	2.2	2.7	2.7			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	5.0	51	Heizleistung / Heat. cap. [kW]										
						El. Leistung / Input power [kW]	7.1	7.0	8.5	8.4	8.2	10.3	10.0			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	7.4	58	Heizleistung / Heat. cap. [kW]										
						El. Leistung / Input power [kW]	10.3	10.2	12.6	12.6	12.4	15.4	15.3			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]								45	45	Heizleistung / Heat. cap. [kW]	18.4	19.9	17.4	18.9	16.8	3.2					
					El. Leistung / Input power [kW]										El. Leistung / Input power [kW]	3.6	4.4	4.4	5.5	5.5						
					COP [-]										COP [-]	5.1	4.5	3.9	3.5	3.1						
Bion Bauhaus AG Im Dorf 23 CH - 9203 Niederwil	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	1.5	52	Heizleistung / Heat. cap. [kW]										
						El. Leistung / Input power [kW]	1.8	1.8	2.2	2.3	2.3	2.8	2.8			El. Leistung / Input power [kW]										
						COP [-]	5.5	4.7	4.2	3.5	3.1	3.2	2.8			COP [-]										
CTA AG Hunzikenstrasse 2 CH - 3110 Münsingen	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	1.0	39	Heizleistung / Heat. cap. [kW]	7.9	8.3	7.4	7.8	6.9	1.4				
						El. Leistung / Input power [kW]	1.3	1.3	1.6	1.6	1.6	2.0	2.0			El. Leistung / Input power [kW]	1.3	1.7	1.7	2.1	2.1					
						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	2.2	45	Heizleistung / Heat. cap. [kW]	17.1	18.4	16.4	17.4	15.5	3.0				
						El. Leistung / Input power [kW]	2.9	2.9	3.6	3.5	3.5	4.3	4.3			El. Leistung / Input power [kW]	3.0	3.8	3.8	4.6	4.6					
						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					

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										Volumenstrom [m³/h] Volume flow	Schalleistungspegel innen [dB(A)] Sound power level indoor	Prüfbedingungen Wasser-Wasser Test conditions water to water						Volumenstrom [m³/h] Volume flow
						B5 / W35	B0 / W35 - 30	B5 / W45	B0 / W45	B-5 / W45	B5 / W55	B0 / W55	W10 / W35 - 30	W15 / W45	W10 / W45			W15 / W55	W10 / W55					
CTA AG Hunzikenstrasse 2 CH - 3110 Münsingen	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	2.3	48	Heizleistung / Heat. cap. [kW]	17.6	18.6	16.5	17.5	15.5	3.1		
	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			El. Leistung / Input power [kW]	3.0	3.7	3.7	4.6	4.6			
						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			
	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	7.1	64	Heizleistung / Heat. cap. [kW]								
						El. Leistung / Input power [kW]	10.1	10.1	12.5	12.4	12.4	15.5	15.5			El. Leistung / Input power [kW]								
						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	9.4	68	Heizleistung / Heat. cap. [kW]								
						El. Leistung / Input power [kW]	12.8	12.8	16.4	16.4	16.5	20.3	20.7			El. Leistung / Input power [kW]								
						COP [-]	4.8	4.3	3.6	3.2	2.7	2.7	2.3			COP [-]								
	CTC Giersch AG Bahnhofstrasse 60 CH - 8112 Otelfingen	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	1.3	48	Heizleistung / Heat. cap. [kW]							
							El. Leistung / Input power [kW]	1.9	1.9	2.3	2.2	2.2	2.7	2.7			El. Leistung / Input power [kW]							
							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	1.4	51	Heizleistung / Heat. cap. [kW]								
						El. Leistung / Input power [kW]	2.1	2.2	2.6	2.6	2.4	3.5	3.3			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	3.3	55	Heizleistung / Heat. cap. [kW]								
						El. Leistung / Input power [kW]	4.6	4.6	5.7	5.7	5.6	7.1	6.9			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	6.0	64	Heizleistung / Heat. cap. [kW]								
						El. Leistung / Input power [kW]	9.1	8.7	10.6	10.1	9.6	12.2	11.7			El. Leistung / Input power [kW]								
						COP [-]	4.4	4.0	3.7	3.3	3.0	3.0	2.8			COP [-]								
Elcotherm AG Sarganserstrasse 100 CH - 7324 Vilters	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	1.8	49	Heizleistung / Heat. cap. [kW]	14.3	15.6	13.6	14.6	12.8			
	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			El. Leistung / Input power [kW]	2.5	3.1	3.1	3.8	3.8			
						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	3.1	48	Heizleistung / Heat. cap. [kW]	22.9	24.7	22.0	23.8	21.1			
						El. Leistung / Input power [kW]	3.9	4.0	4.8	4.9	4.9	6.0	6.1			El. Leistung / Input power [kW]	4.0	4.9	5.0	6.1	6.2			
						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	4.9	59	Heizleistung / Heat. cap. [kW]	35.5	40.0	35.6	37.7	34.2			
						El. Leistung / Input power [kW]	6.7	6.5	7.9	7.8	7.4	9.4	9.2			El. Leistung / Input power [kW]	7.0	8.5	8.3	9.9	9.7			
						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			

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								Volumenstrom [m³/h] Volume flow	Schalleistungspegel innen [dB(A)] Sound power level indoor	Prüfbedingungen Wasser-Wasser Test conditions water to water						
						BS / W35	BO / W35 - 30	BS / W45	BO / W45	B-5 / W45	BS / W55	BO / W55	W10 / W35 - 30			W15 / W45	W10 / W45	W15 / W55	W10 / W55	Volumenstrom [m³/h] Volume flow		
Friap AG Ey 9 CH - 3036 Ittigen	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	1.6	49	Heizleistung / Heat. cap. [kW]						
						El. Leistung / Input power [kW]	2.2	2.3	2.9	2.9	3.0	3.7	3.7			El. Leistung / Input power [kW]						
						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	5.1	60	Heizleistung / Heat. cap. [kW]						
						El. Leistung / Input power [kW]	7.2	7.1	8.5	8.4	8.0	10.2	9.8			El. Leistung / Input power [kW]						
						COP [-]	4.5	4.1	3.7	3.4	3.1	3.0	2.7			COP [-]						
	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	1.5	51	Heizleistung / Heat. cap. [kW]						
						El. Leistung / Input power [kW]	2.1	2.1	2.4	2.3	2.1	2.6	2.4			El. Leistung / Input power [kW]						
						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	1.8	51	Heizleistung / Heat. cap. [kW]						
						El. Leistung / Input power [kW]	2.5	2.4	2.8	2.7	2.5	3.1	2.8			El. Leistung / Input power [kW]						
						COP [-]	4.8	4.3	3.8	3.5	3.2	3.1	2.8			COP [-]						
FWW 1-8	124-09-01	S	R134a	2.2	Heizleistung / Heat. cap. [kW]								50	Heizleistung / Heat. cap. [kW]		8.5	9.5	8.2	9.1	7.8		
					El. Leistung / Input power [kW]									El. Leistung / Input power [kW]		1.6	2.0	1.9	2.4	2.3		
					COP [-]									COP [-]		5.4	4.8	4.3	3.8	3.5		
FWW 1-14	125-09-02	S	R134a	3.4	Heizleistung / Heat. cap. [kW]								51	Heizleistung / Heat. cap. [kW]		13.9	15.3	13.7	14.8	13.1		
					El. Leistung / Input power [kW]									El. Leistung / Input power [kW]		2.6	3.2	3.1	3.8	3.7		
					COP [-]									COP [-]		5.4	4.8	4.4	3.9	3.5		
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	1.8	46	Heizleistung / Heat. cap. [kW]		14.5	15.1	13.1	13.7	11.6	
					El. Leistung / Input power [kW]	2.5	2.4	2.9	2.8	2.6	3.3	3.0			El. Leistung / Input power [kW]		2.7	3.3	3.2	3.8	3.6	
					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	2.0	49	Heizleistung / Heat. cap. [kW]		15.9	17.0	14.6	14.9	13.1	
					El. Leistung / Input power [kW]	2.8	2.7	3.2	3.0	2.8	3.5	3.3			El. Leistung / Input power [kW]		3.0	3.6	3.5	4.2	4.0	
					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	
HCW-PN-46	133-10-04	S	R410A	2.6	Heizleistung / Heat. cap. [kW]	13.3	11.4	12.1	10.4	8.8	10.4	8.7	2.0	49	Heizleistung / Heat. cap. [kW]		15.9	17.0	14.6	14.9	13.1	
					El. Leistung / Input power [kW]	2.8	2.7	3.2	3.0	2.8	3.5	3.3			El. Leistung / Input power [kW]		3.0	3.6	3.5	4.2	4.0	
					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	
FS Installationen Alemannenstrasse 3c A - 6832 Sulz	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	2.2	51	Heizleistung / Heat. cap. [kW]		16.7	17.7	15.9	16.8	15.0
						El. Leistung / Input power [kW]	2.9	2.9	3.6	3.6	3.5	4.4	4.4			El. Leistung / Input power [kW]		3.0	3.8	3.7	4.6	4.5
						COP [-]	4.6	4.3	3.8	3.4	2.9	3.0	2.7			COP [-]		5.5	4.7	4.3	3.7	3.3
Green Terra AG Wiesenstrasse 1a CH - 8865 Bilten	BW 13 EVI	309-12-08	S	R407C	4.4	Siehe / see Wamak s.r.o, BW 13 EVI																

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										Volumenstrom [m³/h] Volume flow	Schalleistungspegel innen [dB(A)] Sound power level indoor	Prüfbedingungen Wasser-Wasser Test conditions water to water						Volumenstrom [m³/h] Volume flow
						B5 / W35	B0 / W35 - 30	B5 / W45	B0 / W45	B-5 / W45	B5 / W55	B0 / W55	W10 / W35 - 30	W15 / W45	W10 / W45			W15 / W55	W10 / W55					
Herz Energietechnik Richard-Strauss-Str. 22 A - 1230 Wien	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	1.9	57	Heizleistung / Heat. cap. [kW]	14.4	15.5	14.0	15.2	13.5	2.5		
		121-07-01	S	R407C	2.0	El. Leistung / Input power [kW]	2.6	2.7	3.3	3.4	3.4	4.2	4.2			El. Leistung / Input power [kW]	2.7	3.4	3.4	4.2	4.2			
							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	2.5	55	Heizleistung / Heat. cap. [kW]	18.4	19.4	17.6	18.4	16.7	3.2		
		122-07-02	S	R407C	2.5	El. Leistung / Input power [kW]	3.5	3.5	4.4	4.3	4.3	5.5	5.6			El. Leistung / Input power [kW]	3.6	4.4	4.4	5.5	5.5			
							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 Austrasse 70 FL - 9490 Vaduz	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	0.9	41	Heizleistung / Heat. cap. [kW]	7.3	8.1	6.8	7.7	5.2	1.3		
		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			El. Leistung / Input power [kW]	1.2	1.4	1.4	1.7	1.7			
							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	
	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	1.4	41	Heizleistung / Heat. cap. [kW]	11.4	12.1	10.6	11.2	9.9	2.0		
		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			El. Leistung / Input power [kW]	2.0	2.4	2.3	2.9	2.8			
							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	1.6	45	Heizleistung / Heat. cap. [kW]	12.9	14.2	12.4	13.6	11.8	2.2		
		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			El. Leistung / Input power [kW]	2.1	2.5	2.5	3.1	3.0			
							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	2.5	45	Heizleistung / Heat. cap. [kW]	19.9	21.4	18.8	20.1	17.6	3.4		
		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			El. Leistung / Input power [kW]	3.5	4.3	4.2	5.2	5.1			
							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 Langäulistrasse 62 CH - 9470 Buchs SG	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	1.3	40	Heizleistung / Heat. cap. [kW]								
							El. Leistung / Input power [kW]	1.8	1.8	2.2	2.2	2.1	2.6			2.6	El. Leistung / Input power [kW]							
							COP [-]	4.6	4.0	3.6	3.2	2.7	2.8			2.5	COP [-]							
Multi Energie AG Wiesentalstrasse 20 CH - 8355 Aadorf	FSW 5.3	203-08-01	S	R407C	4.0	Siehe / see CTC Giersch AG, MSW 8																		
	FSW 16.3	205-08-03	S	R407C	9.0	Siehe / see CTC Giersch AG, MSW 20																		
Ochsner Wärmepumpen GmbH Ochsner-Strasse 1 A - 3350 Haag	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	1.8	43	Heizleistung / Heat. cap. [kW]	13.8	14.6	13.2	13.8	12.3	2.4		
		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			El. Leistung / Input power [kW]	2.4	3.0	3.0	3.7	3.6			
							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	1.9	43	Heizleistung / Heat. cap. [kW]								
							El. Leistung / Input power [kW]	2.3	2.2	2.8	2.7	2.7	3.4			3.4	El. Leistung / Input power [kW]							
							COP [-]	5.3	4.7	4.1	3.7	3.2	3.2			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										Volumenstrom [m³/h] Volume flow	Schalleistungspegel innen [dB(A)] Sound power level indoor	Prüfbedingungen Wasser-Wasser Test conditions water to water						Volumenstrom [m³/h] Volume flow
						BS / W35	BO / W35 - 30	BS / W45	BO / W45	B-5 / W45	BS / W55	BO / W55	W10 / W35 - 30	W15 / W45	W10 / W45			W15 / W55	W10 / W55					
Ochsner Wärmepumpen GmbH Ochsner-Strasse 1 A - 3350 Haag	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	2.5	50	Heizleistung / Heat. cap. [kW]	19.0	20.0	17.7	18.6	16.3	3.3		
	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			El. Leistung / Input power [kW]	3.3	4.0	4.0	4.9	4.9			
						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	GMWW 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	3.9	54	Heizleistung / Heat. cap. [kW]	29.5	31.2	28.0	29.5	26.3	5.1	
							El. Leistung / Input power [kW]	5.2	5.1	6.3	6.2	6.3	7.7	7.8			El. Leistung / Input power [kW]	5.4	6.6	6.6	8.0	7.9		
							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 Wellheimerstrasse 34 D - 91795 Dollnstein	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	2.6	50	Heizleistung / Heat. cap. [kW]	20.1	21.7	19.0	20.3	17.8	3.5		
						El. Leistung / Input power [kW]	3.3	3.2	4.0	3.9	3.8	4.8	4.6			El. Leistung / Input power [kW]	3.5	4.3	4.2	5.2	5.1			
						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 Rte des Daillettes 6 CH - 1705 Fribourg	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	2.0	43	Heizleistung / Heat. cap. [kW]								
						El. Leistung / Input power [kW]	2.6	2.6	3.1	3.1	3.0	3.8	3.7			El. Leistung / Input power [kW]								
						COP [-]	4.9	4.4	3.8	3.4	3.1	3.0	2.7			COP [-]								
	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	5.1	55	Heizleistung / Heat. cap. [kW]								
						El. Leistung / Input power [kW]	7.4	7.2	8.6	8.4	8.1	10.1	9.9			El. Leistung / Input power [kW]								
						COP [-]	4.5	4.1	3.6	3.3	3.0	2.9	2.7			COP [-]								
SIMAKA GmbH Buchwies 14 D - 88260 Argenbühl	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	2.1	52	Heizleistung / Heat. cap. [kW]								
						El. Leistung / Input power [kW]	2.9	2.9	3.4	3.3	3.2	4.2	4.0			El. Leistung / Input power [kW]								
						COP [-]	4.8	4.2	3.9	3.5	3.1	3.1	2.8			COP [-]								
	SIMATRON WP 15	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	2.5	50	Heizleistung / Heat. cap. [kW]	19.7	21.1	18.4	19.7	17.1	3.4	
							El. Leistung / Input power [kW]	3.2	3.1	3.9	3.8	3.7	4.7	4.6			El. Leistung / Input power [kW]	3.4	4.2	4.1	5.0	4.9		
							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	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	5.8	56	Heizleistung / Heat. cap. [kW]	43.6	47.0	42.0	45.2	40.4	7.5		
						El. Leistung / Input power [kW]	7.8	7.7	9.5	9.4	9.3	11.8	11.7			El. Leistung / Input power [kW]	8.1	10.0	9.9	12.1	12.0			
						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 Glatthaldenstrasse 15 CH - 9230 Flawil	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	1.1	39	Heizleistung / Heat. cap. [kW]								
						El. Leistung / Input power [kW]	1.4	1.5	1.8	1.7	1.7	2.1	2.1			El. Leistung / Input power [kW]								
						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	1.5	46	Heizleistung / Heat. cap. [kW]								
						El. Leistung / Input power [kW]	1.8	1.7	2.1	2.1	2.1	2.6	2.5			El. Leistung / Input power [kW]								
						COP [-]	5.5	4.8	4.3	3.7	3.3	3.3	2.9			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										Volumenstrom [m³/h] Volume flow	Schalleistungspegel innen [dB(A)] Sound power level indoor	Prüfbedingungen Wasser-Wasser Test conditions water to water						Volumenstrom [m³/h] Volume flow
						BS / W35	BO / W35 - 30	BS / W45	BO / W45	B-5 / W45	BS / W55	BO / W55	W10 / W35 - 30	W15 / W45	W10 / W45			W15 / W55	W10 / W55					
Voß Wärmepumpen GmbH Lange Gasse 20 D - 93437 Furth im Wald	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	2.2	48	Heizleistung / Heat. cap. [kW]	17.1	18.1	16.0	16.7	14.8	3.0		
	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			El. Leistung / Input power [kW]	2.8	3.4	3.5	4.3	4.3			
						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. Hodrusa - Hamre 1118 SK - 96661 Hodrusa-Hamre	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	2.4	57	Heizleistung / Heat. cap. [kW]								
						El. Leistung / Input power [kW]	3.1	3.1	3.9	3.8	3.8	4.8	4.7			El. Leistung / Input power [kW]								
						COP [-]	5.0	4.5	4.0	3.7	3.3	3.2	2.9			COP [-]								
Weider Wärmepumpen Oberer Achdamm 4 A - 6971 Hard bei Breznaz	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	1.2	45	Heizleistung / Heat. cap. [kW]								
						El. Leistung / Input power [kW]	1.5	1.5	1.9	2.0	2.0	2.5	2.6			El. Leistung / Input power [kW]								
						COP [-]	5.3	4.5	3.9	3.3	2.8	2.9	2.4			COP [-]								
	SW 90 egw	145-10-16	S	R407C	2.7	Heizleistung / Heat. cap. [kW]								1.6	56	Heizleistung / Heat. cap. [kW]	9.0	9.7	8.1	9.0	7.9			
						El. Leistung / Input power [kW]										El. Leistung / Input power [kW]	1.5	1.8	1.9	2.4	2.5			
						COP [-]										COP [-]	6.1	5.3	4.2	3.7	3.2			
Zehnder Group AG Oberfeldstrasse 2 CH - 5722 Gränichen	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	0.4	46	Heizleistung / Heat. cap. [kW]								
						El. Leistung / Input power [kW]	0.7	0.6	0.7	0.7	0.7	0.9	0.8			El. Leistung / Input power [kW]								
						COP [-]	4.3	3.8	3.6	3.2	2.8	3.0	2.6			COP [-]								
	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	0.7	47	Heizleistung / Heat. cap. [kW]								
						El. Leistung / Input power [kW]	1.0	1.0	1.2	1.1	1.1	1.4	1.3			El. Leistung / Input power [kW]								
						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	1.2	52	Heizleistung / Heat. cap. [kW]								
						El. Leistung / Input power [kW]	1.6	1.6	2.0	2.0	2.0	2.5	2.6			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	1.8	-	Heizleistung / Heat. cap. [kW]								
						El. Leistung / Input power [kW]	2.4	2.4	3.0	3.0	3.0	3.8	3.8			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	0.6	49	Heizleistung / Heat. cap. [kW]									
					El. Leistung / Input power [kW]	0.9	0.9	1.0	1.0	1.0	1.2	1.1			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	1.0	-	Heizleistung / Heat. cap. [kW]									
					El. Leistung / Input power [kW]	1.3	1.3	1.7	1.7	1.7	2.1	2.1			El. Leistung / Input power [kW]									
					COP [-]	4.9	4.3	3.8	3.3	2.9	2.9	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										Volumenstrom [m ³ /h] Volume flow	Schalleistungspegel innen [dB(A)] Sound power level indoor	Prüfbedingungen Wasser-Wasser Test conditions water to water					
						B5 / W35	B0 / W35 - 30	B5 / W45	B0 / W45	B-5 / W45	B5 / W55	B0 / W55	W10 / W35 - 30	W15 / W45	W10 / W45			W15 / W55	W10 / W55				
Zehnder Group AG Oberfeldstrasse 2 CH - 5722 Gränichen	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	1.5	-	Heizleistung / Heat. cap. [kW]							
						El. Leistung / Input power [kW]	2.0	2.0	2.5	2.5	2.6	3.2	3.2			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	1.8	57	Heizleistung / Heat. cap. [kW]							
						El. Leistung / Input power [kW]	2.3	2.3	2.8	2.9	2.9	3.6	3.7			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	2.5	-	Heizleistung / Heat. cap. [kW]							
						El. Leistung / Input power [kW]	3.2	3.3	4.1	4.1	4.1	5.1	5.1			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