

**Prüfresultate Sole/Wasser-Wärmepumpen basierend auf der EN 14511:2013 / EN 14511:2018 und EN 14825:2013 / EN 14825:2016**

Test results of brine to water heat pumps based on EN 14511:2013 / EN 14511:2018 and EN 14825:2013 / EN 14825:2016

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	Schalleistungspegel aussen [dB(A)] Sound power level outdoor	Schalleistungspegel innen [dB(A)] Sound power level indoor
						low (35°C) - average												
						B0 / W30-35	B0 / W35 (A-10)	B0 / W34 (A-7)	B0 / W30 (A2)	B0 / W27 (A7)	B0 / W24 (A12)	Abiv / W_ ( )						
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	4.3					
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	7.4	-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						4.9
	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	4.7					
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					
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	7.6	-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					

**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

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)

**Abkürzungen / Abbreviations**

- A Lufttemperatur / Air temperature
- W Wassertemperatur / Water temperature
- r. H. relative Luftfeuchtigkeit / relative humidity
- V<sub>vy</sub> Durchflussrate / Volume flow rate

**Prüfresultate Sole/Wasser-Wärmepumpen basierend auf der EN 14511:2013 / EN 14511:2018 und EN 14825:2013 / EN 14825:2016**

Test results of brine to water heat pumps based on EN 14511:2013 / EN 14511:2018 and EN 14825:2013 / EN 14825:2016

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	Schalleistungspegel aussen [dB(A)] Sound power level outdoor	Schalleistungspegel innen [dB(A)] Sound power level indoor
							B0 / W47-55	B0 / W55 (A-10)	B0 / W52 (A-7)	B0 / W42 (A2)	B0 / W36 (A7)	B0 / W30 (A12)	Abiv / W <sub>—</sub> ( )						
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						
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 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						
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						

**Bauart / Type of construction**

- a Kompaktwärmepumpe für Innenaufstellung / Compact heat pump for indoor installation
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- e Leistungsgeregelte Wärmepumpe mit mehreren Kompressoren / Output-modulated heat pump with several compressors

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)

**Abkürzungen / Abbreviations**

- A Lufttemperatur / Air temperature
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**Prüfresultate Sole/Wasser-Wärmepumpen basierend auf der EN 14511:2013 / EN 14511:2018 und EN 14825:2013 / EN 14825:2016**

Test results of brine to water heat pumps based on EN 14511:2013 / EN 14511:2018 and EN 14825:2013 / EN 14825:2016

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	Schalleistungspegel aussen [dB(A)] Sound power level outdoor	Schalleistungspegel 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 <sub>—</sub> ( )								
IDM Energiesysteme GmbH Seblas 16-18 A - 9971 Marei in Osttirol	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	6.0	-	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							
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	7.5	-	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	6.4	-	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							

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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)

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**Prüfresultate Sole/Wasser-Wärmepumpen basierend auf der EN 14511:2013 / EN 14511:2018 und EN 14825:2013 / EN 14825:2016**

Test results of brine to water heat pumps based on EN 14511:2013 / EN 14511:2018 and EN 14825:2013 / EN 14825:2016

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	Schalleistungspegel aussen [dB(A)] Sound power level outdoor	Schalleistungspegel innen [dB(A)] Sound power level indoor
							W10 / W47-55	W10 / W55 (A-10)	W10 / W52 (A-7)	W10 / W42 (A2)	W10 / W36 (A7)	W10 / W30 (A12)	Abiv / W_ <sub>0</sub>					
IDM Energiesysteme GmbH Seblas 16-18 A - 9971 Marei in Osttirol	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					
Waterkotte GmbH Gewerkenstrasse 15 D - 44628 Herne	EcoTouch 5010.5 Ai	387-17-09	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	388-17-10	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					

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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)

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- r. H. relative Luftfeuchtigkeit / relative humidity
- V<sub>xy</sub> Durchflussrate / Volume flow rate

### 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											Volumenstrom [m³/h] Volume flow	Schalleistungspegel innen [dB(A)] Sound power level indoor	Prüfbedingungen Wasser-Wasser Test conditions water to water							
						V <sub>35</sub>			V <sub>45</sub>			V <sub>55</sub>			V <sub>35</sub>				V <sub>45</sub>			V <sub>55</sub>				
						VolumenstromEinstellung Volume flow adjustment			VolumenstromEinstellung Volume flow adjustment			VolumenstromEinstellung Volume flow adjustment			VolumenstromEinstellung Volume flow adjustment				VolumenstromEinstellung Volume flow adjustment			VolumenstromEinstellung Volume flow adjustment				
BARTL Wärmepumpen Wörthstrasse 13/1 D - 89077 Ulm	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	63	Heizleistung / Heat. cap. [kW]									
						El. Leistung / Input power [kW]	5.7	5.7	5.6	6.9	6.9	8.2	8.2	8.2	4.16		El. Leistung / Input power [kW]									
						COP		5.1	4.5	3.9	4.0	3.5	3.2	2.8	2.4		2.52	COP								
CTA AG Hunzikenstrasse 2 CH - 3110 Münsingen	Optiheat 1-29e	345-14-02	S	R410A	4.8	Heizleistung / Heat. cap. [kW]	31.0	28.0	24.0	29.3	25.3	26.8	23.5	20.2	4.83	66	Heizleistung / Heat. cap. [kW]	41.6	37.1	38.3	34.8	36.6	32.2	6.36		
						El. Leistung / Input power [kW]	6.3	6.3	6.3	7.6	7.6	9.1	9.1	9.2	4.39		El. Leistung / Input power [kW]	6.5	6.5	7.8	7.9	9.2	9.3	6.11		
						COP		5.0	4.5	3.8	3.8	3.3	3.0	2.6	2.2		2.55	COP		6.4	5.7	4.9	4.4	4.0	3.5	3.50
CTC Giersch AG Bahnhofstrasse 60 CH - 8112 Otelfingen	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	49	Heizleistung / Heat. cap. [kW]	12.6	10.9	11.7	10.1	11.4	9.8	1.89		
						El. Leistung / Input power [kW]	1.8	1.8	1.7	2.2	2.1	2.5	2.5	2.4	1.32		El. Leistung / Input power [kW]	2.0	1.9	2.3	2.3	2.7	2.7	1.76		
						COP		5.1	4.5	4.0	4.0	3.6	3.3	3.0	2.6		0.81	COP		6.3	5.7	5.0	4.5	4.2	3.7	1.07
Dolder AG Neugrütstrasse 3 CH - 9430 St. Margrethen	WP-ZR61-1-R407C.SW	353-15-03	S	R407C	9.5	Heizleistung / Heat. cap. [kW]	17.6	15.1	12.9	16.3	14.0	15.3	13.1	11.2	2.61	54	Heizleistung / Heat. cap. [kW]	23.9	20.9	22.2	19.3	20.9	18.2	3.59		
						El. Leistung / Input power [kW]	3.1	3.2	3.2	3.9	3.9	4.7	4.8	5.1	2.45		El. Leistung / Input power [kW]	3.3	3.3	4.0	4.1	4.8	4.9	3.36		
						COP		5.6	4.8	4.0	4.2	3.6	3.2	2.7	2.2		1.63	COP		7.2	6.3	5.5	4.7	4.4	3.7	1.97
Elcotherm AG - Branch Termogamma Via Industria CH - 6710 Biasca	Aquatop S11	350-14-07	S	R410A	2.9	Heizleistung / Heat. cap. [kW]	12.4	10.5	9.3	11.7	10.2	11.0	9.1	8.1	1.86	38	Heizleistung / Heat. cap. [kW]	14.6	13.3	14.7	13.2	14.3	12.5	2.31		
						El. Leistung / Input power [kW]	2.3	2.1	2.3	2.8	2.8	3.3	3.2	3.3	1.75		El. Leistung / Input power [kW]	2.2	2.2	2.7	2.7	3.3	3.3	2.31		
						COP		5.5	5.0	4.0	4.2	3.7	3.3	2.8	2.5		0.99	COP		6.6	6.1	5.4	4.9	4.3	3.8	1.38
	Aquatop S17	351-15-01	S	R410A	3.8	Heizleistung / Heat. cap. [kW]	19.4	16.8	14.8	18.3	15.9	17.4	14.8	13.0	2.94	45	Heizleistung / Heat. cap. [kW]	23.1	21.3	23.3	21.0	22.0	19.4	3.72		
						El. Leistung / Input power [kW]	3.6	3.4	3.6	4.4	4.5	5.4	5.3	5.5	2.78		El. Leistung / Input power [kW]	3.6	3.5	4.4	4.4	5.2	5.3	3.69		
						COP		5.4	4.9	4.1	4.1	3.6	3.2	2.8	2.4		1.65	COP		6.5	6.0	5.3	4.8	4.2	3.6	2.13
Erset S.a.r.l Route de Morat 67 F - 68000 Colmar	PCO 26	339-13-20	S	R407C	2.7	Siehe / see SAPAC SA, PCO 26																				
						171-13-12	S	R407C	2.7	Siehe / see SAPAC SA, PCO 26																
										340-13-21	S	R407C	7.5	Siehe / see SAPAC SA, PCO 75												
						172-13-13	S	R407C	7.5					Siehe / see SAPAC SA, PCO 75												
Friap Feuron AG Ey 9 CH - 3063 Ittigen	FEW 1-10	346-14-03	S	R407C	2.5					Heizleistung / Heat. cap. [kW]	10.9	9.6	8.4	10.5	9.1	9.9	8.5	7.3	1.67	49	Heizleistung / Heat. cap. [kW]					
						El. Leistung / Input power [kW]	2.2	2.2	2.3	2.7	2.7	3.1	3.1	3.1	1.57	El. Leistung / Input power [kW]										
						COP		4.9	4.3	3.8	3.9	3.3	3.2	2.7	2.4	0.93	COP									
Hoval Aktiengesellschaft Austrasse 70 FL - 9490 Vaduz	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	66	Heizleistung / Heat. cap. [kW]	33.3	28.8	31.4	27.2	29.3	25.5	4.96		
						El. Leistung / Input power [kW]	4.7	4.6	4.4	5.5	5.4	6.4	6.2	6.0	3.47		El. Leistung / Input power [kW]	5.0	4.9	5.9	5.9	7.0	6.8	4.75		
						COP (2 Compressors)		5.2	4.6	4.0	4.2	3.7	3.2	2.8	2.3		1.87	COP (2 Compressors)		6.6	5.9	5.3	4.6	4.2	3.7	2.77
						Heizleistung / Heat. cap. [kW]																13.8		12.3		10.2
El. Leistung / Input power [kW]																2.4		2.9		3.4	2.14					
COP																				3.0	1.10					

**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										Volumenstrom [m³/h] Volume flow	Schalleistungspegel innen [dB(A)] Sound power level indoor	Prüfbedingungen Wasser-Wasser Test conditions water to water							
						VolumenstromEinstellung Volume flow adjustment												VolumenstromEinstellung Volume flow adjustment							
						V <sub>35</sub>		V <sub>45</sub>		V <sub>55</sub>		V <sub>35</sub>		V <sub>45</sub>				V <sub>55</sub>		V <sub>35</sub>		V <sub>45</sub>		V <sub>55</sub>	
B5 / W35	B0 / W35 - 30	B-5 / W35	B5 / W45	B0 / W45 - 40	B5 / W55	B0 / W55 - 47	B-5 / W55	B5 / W35	B0 / W35 - 30	B-5 / W35	B5 / W45	B0 / W45 - 40	B5 / W55	B0 / W55 - 47	B-5 / W55	B5 / W35	B0 / W35 - 30	B-5 / W35	B5 / W45	B0 / W45 - 40	B5 / W55	B0 / W55 - 47	B-5 / W55		
Hoval Aktiengesellschaft Austrasse 70 FL - 9490 Vaduz	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	65	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		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		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				16.6		15.5		6.05	62	Heizleistung / Heat. cap. [kW]							
						El. Leistung / Input power [kW]		4.1			4.9		5.6		5.80	El. Leistung / Input power [kW]									
						COP (1 Compressor) [-]		4.4			3.4		2.7		3.51	COP [-]									
	Thermalia comfort H (10)	354-15-04	S	R134a	3.8	Heizleistung / Heat. cap. [kW]	10.6	9.1	7.8	10.1	8.7	9.9	8.5	7.3	1.59	52	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		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		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	44	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		El. Leistung / Input power [kW]								
						COP [-]	5.2	4.4	3.7	3.9	3.3	3.0	2.6	2.2	0.87		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																			
Sapac SA Mühleweg 2 CH - 1734 Tentlingen	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	54	Heizleistung / Heat. cap. [kW]	14.3	13.8	14.7	12.8	14.0	12.2	2.39	
	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		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		COP [-]	5.7	5.5	4.9	4.3	4.0	3.6	1.33	
	PCO 75	340-13-21	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	51	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		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		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	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	44	Heizleistung / Heat. cap. [kW]	11.4	10.4	10.8	9.9	10.6	9.5	1.78	
	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		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		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	50	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		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		COP [-]	5.9	5.4	4.8	4.3	4.0	3.6	1.79	
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 [-]								

### 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											Volumenstrom [m³/h] Volume flow	Schalleistungspegel innen [dB(A)] Sound power level indoor	Prüfbedingungen Wasser-Wasser Test conditions water to water							
						VolumenstromEinstellung Volume flow adjustment													VolumenstromEinstellung Volume flow adjustment							
						V <sub>35</sub>			V <sub>45</sub>			V <sub>55</sub>							V <sub>35</sub>			V <sub>45</sub>		V <sub>55</sub>		
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 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
						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
						COP												80 / W65	COP	6.2	6.2	4.8	4.9	3.9	4.0	4.62
	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	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	80 / W65	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	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	80 / W65	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
						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
						COP												80 / W65	COP (2 Compressors)	6.3	6.3	4.9	4.9	4.1	4.1	7.88
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	
					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	
					COP												80 / W65	COP (1 Compressor)	6.3	6.3	4.9	4.9	4.1	4.1	3.92	
Viessmann Wärmepumpen GmbH Viessmannstrasse 1 D - 35108 Allendorf	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	51	Heizleistung / Heat. cap. [kW]	68.0	59.5	63.1	55.6	60.1	53.1	10.28		
						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	
	Vitocal 300-G BW 301.A45	166-13-07	S	R410A	10.0	COP	5.2	4.6	4.0	4.1	3.6	3.4	3.0	2.6	4.40	80 / W60	COP	6.4	5.7	5.2	4.6	4.3	3.8	5.78		
						COP	5.3	4.6	4.1	4.0	3.6	3.2	2.8	2.5	0.56	80 / W55	COP	7.3	6.3	5.2	4.7	4.1	3.7	0.76		
Waterkotte GmbH Gewerkenstrasse 15 D - 44628 Herne	Basic Line Ai1 Geo 5006.5A	355-15-05	S	R410A	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		
						El. Leistung / Input power [kW]	1.2	1.2	1.2	1.5	1.5	1.8	1.8	1.8	0.94		45	El. Leistung / Input power [kW]	1.2	1.2	1.5	1.5	1.8	1.9	1.22	
	Basic Line Ai1 Geo 5006.5A	178-15-05	S	R410A	1.8	COP	5.3	4.6	4.1	4.0	3.6	3.2	2.8	2.5	0.56	80 / W55	COP	7.3	6.3	5.2	4.7	4.1	3.7	0.76		
						COP	5.3	4.6	4.1	4.0	3.6	3.2	2.8	2.5	0.56	80 / W55	COP	7.3	6.3	5.2	4.7	4.1	3.7	0.76		
	EcoTouch DS 5034.5T	360-15-10	S	R410A	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		
						El. Leistung / Input power [kW]	5.7	5.7	5.7	7.1	7.1	8.5	8.5	8.5	4.30		60	El. Leistung / Input power [kW]	5.7	5.8	7.1	7.2	8.6	8.6	5.61	
EcoTouch DS 5034.5T	180-15-07	S	R410A	4.0	COP	5.1	4.5	3.9	3.9	3.5	3.2	2.8	2.4	2.59	80 / W55	COP	6.5	5.7	5.0	4.5	4.0	3.6	3.41			
					COP	5.1	4.5	3.9	3.9	3.5	3.2	2.8	2.4	2.59	80 / W55	COP	6.5	5.7	5.0	4.5	4.0	3.6	3.41			
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		48	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		56	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]							9.2	1.78	-	Heizleistung / Heat. cap. [kW]										
						El. Leistung / Input power [kW]							3.0	1.68		-	El. Leistung / Input power [kW]									
						COP (1 Compressor)							3.0	1.00		-	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						Volumenstrom [m <sup>3</sup> /h] Volume flow	Schalleistungspegel innen [dB(A)] Sound power level indoor	Prüfbedingungen Wasser-Wasser Test conditions water to water								
						VolumenstromEinstellung Volume flow adjustment			VolumenstromEinstellung Volume flow adjustment					VolumenstromEinstellung Volume flow adjustment			VolumenstromEinstellung Volume flow adjustment					
						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	

**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<sub>xy</sub> 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	Heizleistung / Heat. cap. [kW]	18.4	19.9	17.4	18.9	16.8			
					El. Leistung / Input power [kW]									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 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	
						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	1.4
						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	
						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	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	2.3	48	Heizleistung / Heat. cap. [kW]	17.6	18.6	16.5	17.5	15.5	
						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	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								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		
CTA AG Hunzikenstrasse 2 CH - 3110 Münsingen	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	
						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	
	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 [-]						

**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								
						Heizleistung / Heat. cap. [kW]	El. Leistung / Input power [kW]	COP [-]	Heizleistung / Heat. cap. [kW]	El. Leistung / Input power [kW]	COP [-]	Heizleistung / Heat. cap. [kW]	El. Leistung / Input power [kW]	COP [-]	Heizleistung / Heat. cap. [kW]			El. Leistung / Input power [kW]	COP [-]								
Friap AG Ey 9 CH - 3036 Ittigen	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	1.5				
						El. Leistung / Input power [kW]														1.6	2.0	1.9		2.4	2.3		
						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	2.4				
						El. Leistung / Input power [kW]														2.6	3.2	3.1		3.8	3.7		
						COP [-]															5.4	4.8		4.4	3.9	3.5	
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			51	Heizleistung / Heat. cap. [kW]	16.7	17.7	15.9	16.8	15.0	2.9				
						El. Leistung / Input power [kW]	2.9	2.9	3.6	3.6	3.5	4.4	4.4									3.0		3.8	3.7	4.6	4.5
	GHP 13	149-11-07	S	R410A	2.5	Heizleistung / Heat. cap. [kW]	13.6	12.6	13.6	12.2	10.4	13.1	11.7	2.2				Heizleistung / Heat. cap. [kW]	16.7	17.7	15.9	16.8	15.0	2.9			
						El. Leistung / Input power [kW]	2.9	2.9	3.6	3.6	3.5	4.4	4.4								3.0	3.8	3.7		4.6	4.5	
	COP [-]																										
																								COP [-]	4.6	4.3	3.8
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																					
Friap AG Ey 9 CH - 3036 Ittigen	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														
						COP [-]	4.8	4.3	3.9	3.5	3.2	3.2	2.9														
	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														
						COP [-]	4.8	4.3	3.8	3.5	3.2	3.1	2.8														
	HCS-PN-42 HCW-PN-42	257-10-08 132-10-03	S S	R410A R410A	2.3 2.5	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	2.5			
						El. Leistung / Input power [kW]	2.5	2.4	2.9	2.8	2.6	3.3	3.0														
						COP [-]	4.8	4.3	3.8	3.4	3.1	3.0	2.7														
	HCS-PN-46 HCW-PN-46	258-10-09 133-10-04	S S	R410A R410A	2.4 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	2.8			
						El. Leistung / Input power [kW]	2.8	2.7	3.2	3.0	2.8	3.5	3.3														
						COP [-]	4.8	4.2	3.8	3.4	3.1	3.0	2.7														
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				
						El. Leistung / Input power [kW]	2.6	2.7	3.3	3.4	3.4	4.2	4.2														
						COP [-]	4.9	4.2	3.7	3.2	2.8	2.8	2.5														
	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				
						El. Leistung / Input power [kW]	3.5	3.5	4.4	4.3	4.3	5.5	5.6														
						COP [-]	4.7	4.1	3.6	3.1	2.7	2.7	2.3														
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				
						El. Leistung / Input power [kW]	1.1	1.1	1.3	1.3	1.3	1.6	1.6														
						COP [-]	5.0	4.8	4.3	3.1	2.5	3.2	2.1														

**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					
Hoval Aktiengesellschaft Austrasse 70 FL - 9490 Vaduz	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		
	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			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	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	
		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			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	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	
		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			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 Langäulstrasse 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		
	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			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	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 [-]						
	GMSW 15 plus	GMWW 19 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	
			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	
			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			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
Rathiotherm 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		
	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			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 [-]							

**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				
Sapac SA Rte des Daillettes 6 CH - 1705 Fribourg	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	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	
	SIMATRON WP 15	151-11-09	S	R407C	4.0	Heizleistung / Heat. cap. [kW]	3.2	3.1	3.9	3.8	3.7	4.7	4.6	2.5	50	Heizleistung / Heat. cap. [kW]		3.4	4.2	4.1	5.0	4.9	3.4
						El. Leistung / Input power [kW]	5.3	4.6	4.1	3.6	3.2	3.2	2.9			El. Leistung / Input power [kW]		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	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	
SIMATRON WP31	123-08-01	S	R407C	6.7	Heizleistung / Heat. cap. [kW]	4.9	4.4	3.8	3.4	3.0	3.0	2.6	5.8	56	Heizleistung / Heat. cap. [kW]		5.4	4.7	4.3	3.7	3.4	7.5	
					El. Leistung / Input power [kW]	4.9	4.4	3.8	3.4	3.0	3.0	2.6			El. Leistung / Input power [kW]		5.4	4.7	4.3	3.7	3.4		
Solar- + Wärmepumpentechnik AG Glatthalddenstrasse 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 [-]							
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
						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	
	WW18R	155-12-02	S	R410A	4.9	Heizleistung / Heat. cap. [kW]	5.2	4.6	3.9	3.5	3.1	3.0	2.7	2.2	48	Heizleistung / Heat. cap. [kW]		6.2	5.3	4.6	3.9	3.5	3.0
El. Leistung / Input power [kW]	5.2	4.6	3.9	3.5	3.1	3.0	2.7	El. Leistung / Input power [kW]		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 Brezgen	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]								1.2	56	Heizleistung / Heat. cap. [kW]		9.0	9.7	8.1	9.0	7.9	1.6
						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 [-]							

**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			
Zehnder Group AG Oberfeldstrasse 2 CH - 5722 Gränichen	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 [-]							
	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