

SERVICES

KSW

WATER/WATER HEAT PUMPS FOR HIGH EVAPORATION AND CONDENSATION TEMPERATURES

38–590 kW



HiRef's range of KSW Water/Water heat pumps is designed for all applications where the cold source is at medium temperatures and at the same time, very hot water is required at the condenser - up to 80°C. This particular feature makes KSW units the **ideal solution in the event of medium heat** (up to 45°C) waste heat, which can be used to produce water at higher temperatures in both residential and industrial applications, e.g. district heating systems. All this while **ensuring partial load efficiency, redundancy, compact footprint in utility rooms, low noise levels, auxiliary system management and easy installation.**

- Refrigerant R134a
- Electronically controlled expansion valve supplied as standard
- Optional Vic-Taulic hydraulic couplings
- Optional integrated energy meter via Modbus, for metering the energy absorbed by the machine
- External pump control according to constant T or constant ΔT logic

Ideal design for medium temperature heat sources

Thanks to the special features of the KSW range, heat sources at temperatures **between 30° and 45°C** (and therefore, unsuitable for direct use) are used by heat pumps **to produce hotter water.** This is true for industrial heat waste, which can be reused to produce, for example, district heating. Similarly, in residential applications, KSW heat pumps can, for example, use in **wintertime fan coil loop water as a heat source** to produce water to feed to high temperature terminals, produce hot water or run anti-legionella cycles.



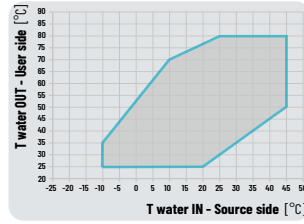
More space in the heating unit

The adoption of compact plate heat exchangers facing the unit right side panel **maximise the use of the available internal space thanks to reduced unit footprint.**



Maximum efficiency at partial loads

The KSW range adopts a multi-Scroll solution also on single circuits, electronically controlled expansion valves, plate heat exchangers and the option to control the (external) circulation pumps **via dedicated software**: all these characteristics allow **high energy efficiency to be achieved at partial loads**.



Optimised units for high temperature water production (80°C)

The KSW range units can produce water **up to 80°C** even when associated with a source of medium-temperature water (up to 45°C). This is thanks to **an accurate sizing of the heat exchangers and to the use of Scroll compressors** specially developed for high evaporation and condensation temperatures.



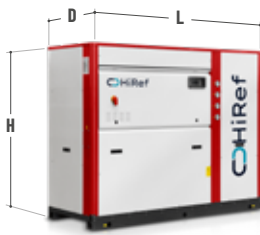
Attention to detail and low noise operation

Scroll compressors, which are the main noise source in the unit, are fitted on rubber feet; **these dampen vibration and therefore attenuate the noise transmitted to the various system parts**. On request, the compressor compartment can be lined with special sound absorbing material and the compressors encased in special insulating hoods **to reduce airborne noise emissions**.



Efficiency and reliability in line with system requirements

The available refrigerating circuit configurations have been designed to ensure, also simultaneously, **redundancy and efficiency at partial loads**. More specifically, the units - depending on the size of the machine and on specific plant engineering requirements - consist of two compressors on two circuits **for high system redundancy** or four compressors (double tandem) on two circuits for a system that is **simultaneously redundant and efficient at partial loads**.



KSW		040K	050K	060K	081K	082K	091K	092K	101K	102K	121K	122K	151K	152K	171K	172K	174K	201K
User water values 70/80°C, 45/40°C source water side																		
Thermal power	kW	38	49.5	61.1	75.6	75.8	83.9	84.1	97.1	97.3	121.3	121.5	148.8	149.3	171	171.3	166.4	191.2
Total absorbed power	kW	8.5	11.2	14.1	16.9	16.9	19	19	22.4	22.3	27.9	27.8	35	35	40.2	40.1	38.3	45.2
COP		4.45	4.41	4.33	4.47	4.49	4.41	4.44	4.34	4.35	4.35	4.37	4.25	4.26	4.26	4.27	4.35	4.23
SCOP		4.18	4.2	4.17	4.91	4.92	4.89	4.94	4.84	4.95	4.86	4.87	4.52	4.59	4.62	4.65	5.15	4.67
Sound power [Standard]	dB(A)	74	74	78	77	77	77	77	77	77	81	81	84	84	85	85	80	86
Sound power [Low noise]	dB(A)	70	70	74	73	73	73	73	73	73	77	77	80	80	79	79	74	80
Dimensions [LxHxD]	mm	804x1462x607					1174x1594x772								1644x1594x772			
																	2374x1854x877	1644x1594x772
KSW		202K	204K	221K	222K	241K	242K	244K	301K	302K	304K	344K	404K	444K	484K	554K	604K	
User water values 70/80°C, 45/40°C source water side																		
Thermal power	kW	191.3	192	211.4	211.8	240.9	241.7	239.5	291.5	292.3	296.1	339.5	380.5	431.7	474.7	537.1	589.7	
Total absorbed power	kW	45.2	45.1	51.4	51.3	56.5	56.4	56.3	69.9	69.9	70.4	80.6	91.2	102.3	114.5	126.3	139.8	
COP		4.24	4.25	4.12	4.13	4.26	4.28	4.26	4.17	4.18	4.2	4.21	4.17	4.22	4.14	4.25	4.22	
SCOP		4.84	5.14	4.68	4.84	4.72	4.82	5.05	4.65	4.85	4.74	4.84	4.98	5	4.93	4.98	5.01	
Sound power [Standard]	dB(A)	86	80	87	87	88	88	84	90	90	87	88	89	90	91	92	93	
Sound power [Low noise]	dB(A)	80	74	81	81	82	82	78	82	82	79	80	81	82	83	84	85	
Dimensions [LxHxD]	mm	1644x1594x772	2374x1854x877	1644x1594x772					2374x1854x877	1644x1594x772				2374x1854x877				
KSW		040K	050K	060K	081K	082K	091K	092K	101K	102K	121K	122K	151K	152K	174K	204K	244K	304K
R513A - Heating: User water temperature 70/80°C, Source water temperature 45/40°C																		
Thermal power	kW	39.6	46	58.3	80.7	80.7	93.4	93.4	104.6	104.6	119.8	119.8	139.8	139.8	185.8	209.2	237.7	281.5
Total absorbed power	kW	9.7	11	14.7	19.2	19.2	22.5	22.5	25.7	25.7	29.3	29.3	35.2	35.2	45.4	51.4	58.6	69.8
COP		4.08	4.18	3.97	4.20	4.20	4.15	4.15	4.07	4.07	4.09	4.09	3.97	3.97	4.09	4.07	4.06	4.03
Sound power [Standard]	dB(A)	74	74	79	77	77	77	77	78	78	82	82	85	85	80	81	85	88
Dimensions [LxHxD]	mm	804x1462x607					1174x1594x772					2374x1854x877						

Also available with 60 Hz power supply