







Concrete Heating Systems



Worldwide #1 in Containerized Turnkey Cooling and Heating Solutions

KTI-SAUTER – heating and cooling from a single source The best of both worlds

Every KTI-SAUTER concrete heating system incorporates the knowhow of the global market leader for concrete heating systems and the engineering skills of the world number 1 in containerised cooling systems.

30 years of excellent solutions and installation in all climatic zones in the world are the basis for the pioneering KTI-SAUTER systems, from the hot water station HWS and the air heater OLH to the

All systems can be built according to the international standards.

KTI-SAUTER – the right concrete temperature when it is cold

If you are working with concrete in cold temperatures and a specific concrete temperature is stipulated, you need a heating system for your sand and gravel bins as well as preheated mixing water. The water/cement value is not affected thanks to the use of hot air as a heat transfer medium. The special design of the silo nozzles supports the energy-efficient operation of KTI-SAUTER systems.

The BOOSTER or TURBO are suitable at low temperatures that are commonplace in North America, Scandinavia and Russia in winter. Both have a system output of up to 1,500 kW and offer the advantage of a combined hot air and hot water heater with just one burner.

KTI-SAUTER sets the standard especially with the BOOSTER because up until now, nobody has succeeded in producing a system within this performance range and exclusively using fresh air as a heat transfer medium. BOOSTER, TURBO and COMBI MASTER. This unique solution offers not only water cooling and heating but also air cooling and heating.

The synergies within KTI-SAUTER come into their own with large projects in particular where concrete has to be heated and cooled. These are handled by KTI-SAUTER from a single source. Interfaces are significantly reduced. KTI-SAUTER is the global full-service supplier for tempered concrete.



KTI-SAUTER - a success story

- 1956 Foundation of the company INWAG in Kreuzlingen (Switzerland) with the following business units: concrete heating and hot water generation for residential buildings.
- 1978 Acquisition of INWAG by Belimed SAUTER AG in Sulgen (Switzerland).
- 2010 KTI Plersch acquires the Concrete Heating business unit and continues to run this as Sauter Plersch AG.
- 2016 Full integration of Sauter Plersch at the Balzheim site: as a business unit of KTI-Plersch Kältetechnik GmbH, KTI-SAUTER is the leading global brand for concrete heating systems.
- 2017 The synergies lead to the first joint innovation: the COMBI MASTER, available in two variants.



General heating requirements

The new intuitive control Easily understandable interface – reliable and functional PLC

All KTI-SAUTER concrete heating systems are equipped with the same user interface. The handling is very easy and all functionalities are subdivided in a logical way. Remote access is available and the system is multilingual, of course. Customization is also possible.

Behind this user-friendly interface, a Siemens PLC – well-known for its reliability and its optimized functionailites – is installed.

The new control is available with all KTI-SAUTER HWS, OLH, BOOSTER, TURBO Splash, TURBO Dragon, TURBO Switch and COMBI MASTER.

YOUR ADVANTAGES

- KTI Interface included for all KTI-SAUTER plants
- User-friendly touch surface in English, French, German and Russian
- Optional: Customized layouts and other languages
- · Remote control for all plants available
- Siemens PLC for highest reliability and optimized functionalities







The KTI-SAUTER Control offers a remote connection via a secure VPN. The choice of languages can be customized



The layout is the same with all KTI-SAUTER plants (picture shows COMBI MAS-TER). The dashboard informs precisely of the plant's functions. The timer allows to fix working hours, also all informations regarding the plant's output and settings are just one touch away. System errors and stoppages are indicated immediately



The advantage: The new PLC controls automatically and independently up to 32 bins. The site manager has always a perfect overview on the plant and can take corrective actions when needed just at the right time

Hot Water Station HWS Unpressurised – flexible – energy-saving

- The fact that the system is unpressurised brings an end to annual inspections and periodic testing for the users. This directly reduces the ongoing operating costs
- The HWS is flexible due to the use of a heat transfer station that enables hot process water to be fed directly from the supply network as usual
- Energy-saving with an overall efficiency of up to 97% through the use of the optional efficiency package

The system output and water volume are tailored to the needs of common mixing plants. The robust design with a stainless steel tank and the high quality insulation ensure a long service life. With exhaust gas temperatures of only approx. $70^{\circ}C / 158^{\circ}F$, the new hot water station uses virtually all of the heat energy supplied and provides maximum efficiency.

The proven burner variants are available as oil and gas burners in the respective sizes for the heating. The hot water station HWS can optionally be equipped with the efficiency package. This is based on a flue gas/water heat exchanger that enables virtually all of the energy from the exhaust gases to be used. The residual heat recovered from the exhaust gas is fed to the boiler by means of circulation or through the preheated fresh water. The efficiency of the system is thereby increased by around 5% up to a total of 97%.





Hot Water Station HWS 300

Hot Water Station HWS	HWS 300	HWS 500	HWS 750	HWS 1000	HWS 1500
Output	300 kW	500 kW	750 kW	920 kW	1,320 kW
Dimensions (L x W x H) in mm	2,400 x 1,150 x 1,560	2,800 x 1,150 x 1,800	2,800 x 1,150 x 1,800	3,600 x 1,850 x 2,120	4,100 x 2,000 x 2,400
in ft.	94.5 x 45.3 x 61.4	110.2 x 45.3 x 70.9	110.2 x 45.3 x 70.9	141.7 x 72.8 x 83.5	161.4 x 78.7 x 94.5
Water storage	2,600 l	3,800 l	3,800 l	6,140 l	9,000 l
Water flow rate at $\Delta T = 40^{\circ}C$ with- out exhaust gas heat exchanger	6,000 l/h	9,620 l/h	14,800 l/h	18,600 l/h	26,700 l/h
Water flow rate at $\Delta T = 40^{\circ}C$ with exhaust gas heat exchanger	6,250 l/h	10,220 l/h	15,600 l/h	19,200 l/h	27,600 l/h
Water flow rate at $\Delta T = 60^{\circ}C$ with- out exhaust gas heat exchanger	4,000 l/h	6,600 l/h	9,900 l/h	12,400 l/h	17,800 l/h
Water flow rate at $\Delta T = 60^{\circ}C$ with exhaust gas heat exchanger	4,150 l/h	7,000 l/h	10,420 l/h	12,800 l/h	18,300 l/h
Max. water temperature			85°C / 185°F		
Medium			Oil / gas / combi		
Max. oil consumption	30 l/h	50 l/h	75 l/h	92 l/h	132 l/h
Electrical energy requirements with burner	18 kW	18 kW	25 kW	35 kW	40 kW
Antifreeze heater			6 kW		
Weight	2,370 kg	2,970 kg	2,970 kg	3,800 kg	4,200 kg

Efficiency package HWS

HWS - direct installation variant



When using the HWS as an unpressurised water heater, the hot water is conveyed directly to the mixing plant or truck mixer with the feed pump. The entire water installation can be optionally expanded, e.g. for heating rooms or with additional heat exchangers.

HWS – indirect installation variant



The advantage of indirect hot water generation by means of a heat transfer station is that the water pressure from the public pipe network is used to feed the process water to the mixing plant or truck mixer. HWS and the transfer station. This significantly reduces the maintenance and contamination of the HWS. The circulation pump used in this circuit needs only 1/10 of the power consumption compared to the hot water feed pump for the basic installation. (The figure shows optional accessories.)

A further advantage: there is a closed heating circuit between the

Air Heater OLH Robust and suitable for any bin types

The hot air bin heating systems type OLH are generally suitable for any silo types. Whether you are using a star, tower or in-line system, the OLH always adapts to their individual requirements.

The structure is made of solid steel and a fully welded housing. The housing is equipped with special internal insulation to ensure good sound and heat insulation. The heating register used on the front is finished to a high quality and is made from heat-resistant high alloy steel, amongst other things.

The high-pressure fan in the models OLH 180 is positioned on the air heater so that it does not vibrate. The fan is located on the side next to it from the model OLH 300 onwards.

The control cabinet is attached to the unit and equipped with a Siemens PLC controller S1200 of the latest generation. This enables the customer to use freely selectable work or time programmes.

The air heater OLH can also be installed in a container on request. KTI-SAUTER customers opt for a combination of an air heater and hot water boiler in a container for many applications.



OLH 1000 installed in a factory



Riello burners are the OLH's standard

SAU	TER S	1	2		0
(1) Out	tpet	No. Contractor			
C	0 12019		E 120.7	1 20°C	
\$	6 1107	I Inore	E Dian	Interest	
0	•			•	3
0	-3.5	20.00	20 %	38	
A					

Operating display OLH

Air heater OLH	OLH 180	OLH 300	OLH 1000		
Output	210 kW	380 kW	1,000 kW		
Dimensions (L x W x H) in mm	2,060 x 700 x 2,255	3,235 x 1,100 x 1,510	2,800 x 1,150 x 2,000		
in ft	81.1 x 27.6 x 88.8	127.4 x 43.3 x 59.4	110.2 x 45.3 x 78.7		
Air outlet (at inlet -10°C / 14°F)	130 – 150°C / 266 – 302°F	130 – 150°C / 266 – 302°F	130 – 150°C / 266 – 302°F		
Medium	Oil / gas / combi				
Max. oil consumption	21 l/h	38 l/h	100 l/h		
Air volume flow rate	6,480 m³/h	9,720 m³/h	11,480 m³/h		
Air pressure	6,200 Pa	6,700 Pa	6,700 Pa		
Steaming (optional)	250°C / 482°F + 100 kg/h Wasser				
Electrical energy requirements with burner	19 kW	32 kW	80 kW		
Weight	1,700 kg	2,400 kg	3,500 kg		

Individually controlled – energy and costs savings



Bin 1 Bin 2 Bin 3 Bin 4 Bin 5 Bin 6 Τ1 T2 T3 Т4 T5 Т6 Hot air 1 1 ---Ethernet Convenient control of the entire system from the control room of the mixing plant 32 input interfaces to Output cards to control the air integrate the temperature flaps sensors

Robust, tested and safe: the flap control in a separate control cabinet

Air heater OLH

BOOSTER Perfect energy efficiency without exhaust gases

The BOOSTER with the optional efficiency package reduces energy consumption and costs: The exhaust gases are fed into a special flue gas/water-heat exchanger downstream of the combustion chamber. Here the exhaust gas temperature is reduced to approx. $70^{\circ}C/158^{\circ}F$ and the energy is removed from the boiler and fed to the supply air that is already upstream of the combustion chamber to



preheat the incoming fresh air. Losses of less than 3% of the overall performance are incurred due to the low exhaust gas flow rate that is produced solely by a small burner fan. For example, the consumption figures from a customer in Moscow using the BOOSTER with the efficiency package in the wintry conditions there show that an oil consumption of just 0.7 litres per $1m^3$ concrete is possible. An investment that pays off because the efficiency increases again by 10% up to 97% through the use of this heat exchanger. This also prevents the hot water in the storage tank overheating, thus significantly reducing forced shut-offs of the burner.

YOUR ADVANTAGES

- Large output up to 1,320 kW, less than 3% exhaust gas loss
- Separation of clean hot air for the gravel and sand heating in the bin on the one hand and the combustion gases on the other hand: 100% emissions-free hot air ensures safety in closed rooms
- No contamination of the aggregates
- Adjustable burner output for maximum efficiency and lowest energy consumption
- Bin valve control via a PLC
- Up to 17,300 l/h process water at 65°C / 149°F
- Hot air temperature up to 340°C / 644°F incl. an option to



BOOSTER with Efficiency-Package	1000	1500
Output	920 kW	1,320 kW
Dimensions (L x W x H) in mm	5,900 x 2,200 x 2,300	9,100 x 2,300 x 2,300
in ft	232.3 x 86.6 x 90.6	358.3 x 90.6 x 90.6
Energy distribution water / air	65 % / 35 %	65 % / 35 %
Water storage	6,500 l	9,000 l
Water flow rate at $\Delta T = 40^{\circ}C / 104^{\circ}F$	12,200 l/h	17,500 l/h
Water flow rate at $\Delta T = 60^{\circ}C / 140^{\circ}F$	8,000 l/h	11,600 l/h
Max. water temperature	85°C / 185°F	85°C / 185°F
Air outlet (at inlet -10°C / 14°F)	320°C / 608°F	320°C / 608°F
Medium	Oil / gas / combi	Oil / gas / combi
Max. oil consumption	92 l/h	132 l/h
Air volume flow rate	2,800 m³/h	3,600 m³/h
Air pressure	20,000 Pa	30,000 Pa
Max. steam flow rate	150 kg/h	200 kg/h
Electrical energy requirements with burner	65 kW	85 kW
Antifreeze heater	9 kW	9 kW

The new TURBO 3 ranges – 100% efficiency

s		0	4 °C	190 °C	60 °C	Med 26.04.2017	0 13:57
60	Output						
	Air	-	Flap Contr	ol	Steam	Wa	ter
C	Mixer						
2	Hixer water tem;	serature	60 °C.				
0	Room heating						-
0	Return line temp	erature	10 °C				
A	Truck						-
-	En En	abling		Time 1	20 Sec		
06	0-0						
6							



With a water flow rate of up to 22,500 l/h, the new TURBO Splash produces hot water (70%) and hot air (30%). Since the fed energy is used without loss, the TURBO Splash does not need a chimey.











The new TURBO Dragon

The new TURBO Dragon produces up to 3.500 m^3 steam (75%) plus hot water (25%). The fed energy is used without loss for steaming and thawing of the gravel. The TURBO Dragon does not need a chimney.



The new TURBO Switch

The new TURBO Switch combines the functions of the TURBO Splash as well as the functions of the TURBO Dragon. So it produces either mainly steam or mainly hot water. Of course, with a 100 % engergy efficiency.



YOUR ADVANTAGES

- 3 ranges 3 operational areas
- No loss of energy
- High efficiency due the use of just one burner for hot air and hot water
- STEAM function for a fast thawing of the aggregates
- LPC and monitoring of all functions via PC

The new TURBO family Effective and reliable SAUTER quality

Cost awareness is a top priority with the TURBO. The TURBO concept is based on the SAUTER heating system components that have been tried and tested over a long period of time. The best possible materials are used. These include the stainless steel heat exchanger, the well-insulated hot water tank in sizes ranging from 6 to 8 m³ as well as the reliable burner technology with an output of 750 to 1,500 kW.

The advantages of this system are the generation of hot air and hot water with only one burner with no energy loss. Any energy generated by the oil or gas burner is fed directly into the mixing water as heat energy or into the gravel or sand bins as a mixture of hot gas and air. A chimney is therefore completely unnecessary.

The TURBO of course also offers the POWER-BOOST function for rapid thawing of the aggregates. A humidified mixture of air and exhaust gas ensures maximum efficiency at a high air temperature. Consequently, nothing stands in the way of starting to produce concrete on short notice.

Technical data

TURBO	TURB0 750	TURB0 1000	TURB0 1250	TURB0 1500	
Output	750 kW	1,000 kW	1,250 kW	1,500 kW	
Dimensions (L x W x H) in mm in ft	5,800 x 2,200 x 2,400 228.3 x 86.6 x 94.5		6,000 x 2,300 x 2,400 236.2 x 90.6 x 94.5		
Water storage	6,0	00 l	8,000 l		
Medium		Oil	Oil / gas		
Max. oil consumption	75 l/h	100 l/h	125 l/h	150 l/h	
Air volume flow rate	1,200	m³/h	1,500 m³/h		
Air pressure	45,000 Pa				
Electrical energy requirements with burner	45	kW	55 kW		
Antifreeze heater	9 kW				



Inside a TURBO with gas



* PC as an option

You have the choice: TURBO Splash, TURBO Dragon and TURBO Switch

TURBO Splash	TURBO	TURBO	TURBO	TURBO
	Splash 750	Splash 1000	Splash 1250	Splash 1500
Energy distribution water / air	70 % / 30 %	70 % / 30 %	70 % / 30 %	70 % / 30 %
Water flow rate at $\Delta T = 40^{\circ}C/104^{\circ}F$	7,900 l/h	10,700 l/h	13,400 l/h	15,800 l/h
Water flow rate at $\Delta T = 60^{\circ}C / 140^{\circ}F$	5,300 l/h	7,100 l/h	8,900 l/h	10,500 l/h
Max. water temperature	85°C / 185°F	85°C / 185°F	85°C / 185°F	85°C / 185°F
Air outlet (at inlet -10°C / 14°F)	250°C / 482°F	250°C / 482°F	250°C / 482°F	250°C / 482°F

TURBO Dragon	TURBO	TURBO	TURBO	TURBO
	Dragon 750	Dragon 1000	Dragon 1250	Dragon 1500
Energy distribution water / air	25 % / 75 %	25 % / 75 %	25 % / 75 %	25 % / 75 %
Water flow rate at $\Delta T = 40^{\circ}C / 104^{\circ}F$	4,000 l/h	5,300 l/h	6,700 l/h	8,000 l/h
Water flow rate at $\Delta T = 60^{\circ}C / 140^{\circ}F$	2,600 l/h	3,500 l/h	4,400 l/h	5,300 l/h
Max. water temperature	85°C / 185°F	85°C / 185°F	85°C / 185°F	85°C / 185°F
Air outlet (at inlet -10°C / 14°F)	250°C / 482°F	250°C / 482°F	250°C / 482°F	250°C/482°F



TURBO Dragon in full load during a test



TURBO SWITCH	TURBO SWITCH 750	TURBO SWITCH 1000	TURBO SWITCH 1250	TURBO SWITCH 1500
Energy distribution water / air*	70 % / 30 %	70 % / 30 %	70 % / 30 %	70 % / 30 %
Energy distribution water / air**	25% / 75 %	25% / 75 %	25% / 75 %	25% / 75 %
Water flow rate at $\Delta T = 40^{\circ}C^{*}$	11,200 l/h	15,000 l/h	18,800 l/h	22,500 l/h
Water flow rate at $\Delta T = 60^{\circ}C^{*}$	7,500 l/h	10,000 l/h	12,500 l/h	15,000 l/h
Max. water temperature	85°C / 185°F	85°C / 185°F	85°C / 185°F	85°C / 185°F
Air outlet (at inlet -10°C / 14°F)	250°C / 482°F	250°C / 482°F	250°C / 482°F	250°C / 482°F

* Normal operation ** Turbo Steam operation

COMBI MASTER CM 50 and CM 80 One system for cold air and cold water, hot air and hot water



The COMBI MASTER combined heating and cooling system was developed for regions in which the concrete has to be heated in winter and cooled in summer before it is processed.

The COMBI MASTER is the only solution on the market to use both the air and water as a cooling and heating medium. The COMBI MASTER blows cold or hot air into the existing bins of the concrete mixing plant to cool or heat the aggregates. This is the most costeffective solution to ensure the desired concrete temperature. In contrast, the water is fed directly to the concrete in the mixing plant with water-based heating or cooling to achieve the desired temperature. The COMBI MASTER is characterised by its low energy consumption and high reliability even with this form of cooling and heating.





air for the bins and cold water for the truck mixers



During winter, the COMBI MASTER produces warm air for the bins as well as warm water for the truck mixers and for heating the buildings

KTI-SAUTER COMBI MASTER

COMBIMASTER	CM50	CM80
Concrete production	50 m³/h	80 m³/h
Hot water heat output	300 kW	300 kW
Hot water volume flow rate	3,2 m³/h	3,2 m³/h
Hot water outlet – max. temperature	85°C / 185°F	85°C / 185°F
Water inlet – min. temperature	5°C / 41°F	5°C / 41°F
Hot air heat output	210 kW	380 kW
Hot air outlet – max. temperature	150°C / 302°F	150°C / 302°F
Air inlet – min. temperature	-10°C / 14°F	-10°C / 14°F
Water cooling output	40 kW	50 kW
Water inlet – max. temperature	20°C / 68°F (max. 25°C / 77°F)	20°C / 68°F (max. 25°C / 77°F)
Cold water outlet – temperature	4°C /39.2°F (max. 9°C / 48.2°F)	4°C /39.2°F (max. 9°C / 48.2°F)
Cold water volume flow rate	2,2 m³/h	2,7 m³/h
Average air cooling output	105 kW	190 kW
Chiller output	250 kW	430 kW
Ethylene glycol – inlet temperature	10°C / 50°F	10° C
Ethylene glycol – outlet temperature	2° C	2° C
Container size	40 ft	40 ft
Air outlet size	ca. 400 DN	ca. 500 DN
Water outlet size	ca. 65 DN	ca. 50 DN
Ambient temperature	-10 35°C / 14 95°F	-10 35°C / 14 95°F
Water inlet temperature	5 20°C / 41 68°F	5 20°C / 41 68°F
Water outlet temperature	4 90°C / 39.2 194°F	4 90°C / 39.2 194°F
Water per m ³ concrete	170 l/m³	170 l/m³

KTI-SAUTER Service – Good Maintenance Pays Off

KTI-SAUTER heating systems are ideal for the harsh conditions in the concrete industry thanks to their excellent and robust workmanship. However, an annual maintenance also considerably extends the service life of your installed system and also saves fuel costs. KTI-SAUTER therefore offers you annual maintenance and maintenance contracts at fixed costs.

You decide which maintenance intervals are the best solution for you: choose from the three comprehensive service package contracts – Basic, Standard and Plus – or opt for the standard maintenance.

Any necessary repair work that is identified during the inspection can be completed at a fixed amount by way of a cost estimate.

KTI-SAUTER also offers you complete burner maintenance as a certified Riello service partner. This annual inspection not only

saves fuel but also ensures that operational safety is maintained. Spare parts for all common burner models are



of course held in stock in the KTI warehouses.

Service package contracts	Service package Basic	Service package Standard	Service package Plus
Inspection of burner and system	Yes	Yes	Yes
Analysis of the error log for the exact evaluation of the system status	Yes	Yes	Yes
Professional analysis of the necessary work	Yes	Yes	Yes
On-site visits per year	1	1	2
Period of inspections	May – August	April – September	No time restriction
Documentation of the completed work	Yes	Yes	Yes
Material costs	– 5 %	- 10 %	- 20 %
Wear parts included up to		100€	200€

YOUR ADVANTAGES

- · Maintenance schedules can be planned
- Fastest response time in the event of a system stoppage in winter
- Price advantage for spare parts
- Highly trained service engineers
- · Burner maintenance by the system manufacturer

You too can benefit from excellent service quality and opt for a KTI-SAUTER maintenance contract to ensure that your heating system also achieves optimum performance next winter.

Email: info@kti-plersch.com



Telefon: +49 7347 9572-0

Remote maintenance

Remote maintenance and monitoring are vital in the area of plant and system operation. KTI-SAUTER offers you a remote maintenance system via the Internet for the safe maintenance and monitoring of your system. This can also be integrated into existing systems with a PLC controller.

What this means for you:

- Easy support for the optimisation of parameters, software updates and troubleshooting
- Alarm signalling via E-mail or SMS (optional extra)
- Remote control of systems (optional extra)

The remote maintenance system is completely integrated into the system control cabinet and connected directly to the PLC controller.

The connection to the Internet is established via the fixed network or also via the mobile telephone network – it is therefore largely independent of the system location.



KTI-SAUTER Agencies and Registered Offices





KTI-Plersch Kältetechnik GmbH

Carl-Otto-Weg 14/2 D-88481 Balzheim Deutschland

 Tel.:
 +49 73 47 95 72-0

 Fax:
 +49 73 47 95 72-22

 E-mail:
 info@kti-plersch.com

 www.kti-plersch.com

Switzerland office

Bruno Leemann Tel.: +41 79 9170582 E-mail: bruno.leemann@sauterplerschag.com

USA and Canada

KTI of North America canada@kti-plersch.com us@kti-plersch.com

Brazil (Sao Paulo)

KTI-Plersch do Brasil brazil@kti-plersch.com

Italy (Milan)

KTI Italy Tel.: +39 02 7532404 italy@kti-plersch.com

Russia (Moskow Area)

000 Bresta Petr Medved petr.medved@bresta.ru +7 495 585 15 05 alexej.utigenow@sauterplerschag.com +7 8 965 3884081 South-Africa (Johannesburg) KTI South Africa

southafrica@kti-plersch.com

Ukraine (Kiev) TOV Ammann Tel. +38 044 4990 455 sauter@ukr.net

United Kingdom and Ireland

Berkshire Engineering Supplies Ltd. Tel. +44 118 9811116 info@berk-eng.com

Bautzen office Raik Heinrich

Preuschwitzer Straße 20

02625 Bautzen Deutschland

Tel.: +49 151 10983667 E-mail: raik.heinrich@sauterplerschag.com

