GSE CASCADA SOLAR STATION WITH OVERHEATING PROTECTION

Designed for quick and hassle-free installation, this compact unit significantly minimizes space requirements in Hydro Stations and rooftop installations. It ensures the efficient operation of solar thermal systems by preventing overheating and protecting circulators from adverse weather conditions.

An ideal solution for hotel complexes (e.g., bungalows) without a central Hydro-room, it enables decentralized support of multiple building clusters via solar systems and supplementary thermal sources, ensuring reliable and hygienic Fresh Hot Water supply.

The system includes a GSE CASCADA HE FW-CF 1/2 Domestic Hot Water **heat exchanger**, a heat rejection unit (**dry cooler**) with a solenoid valve, two PWM **circulators** (one for the solar collectors and one for the heat exchanger, with the option to add a third for recirculation), and a **programmable controller**. System operation can be fully automated via an optimized PLC, offering real-time temperature control and visual monitoring through either a touch screen or a PC.

INOX

OVERHEAT

COUNTER FLOW

INOX CONTAINER

FRESH WATER

AVAILABLE MODELS

MODELS	GSE CASCADA STATION FW-CF	
	1/2 INOX/SS	1/3 INOX/SS
Heat Exchanger	CASCADA HE FW-CF 1/2	CASCADA HE FW-CF 1/3
DHW Flow Rate (m^3/h)	2	3
Nominal Thermal Power of Heat Exchanger (kW)*	70	105
Nominal Thermal Power for the Dry Cooler (kW)**	15	20
Length (mm)	1570	1570
Width (mm)	1120	1120
Height (mm)	800	800
Weight (kg)	129	137
* Minimum inlet temperature of the primary circuit: 51°C, secondary circuit temperatures: 20-50°C. **Ambient temperature: 42°C, Solar Collector Temperatures: 75-70°C.		

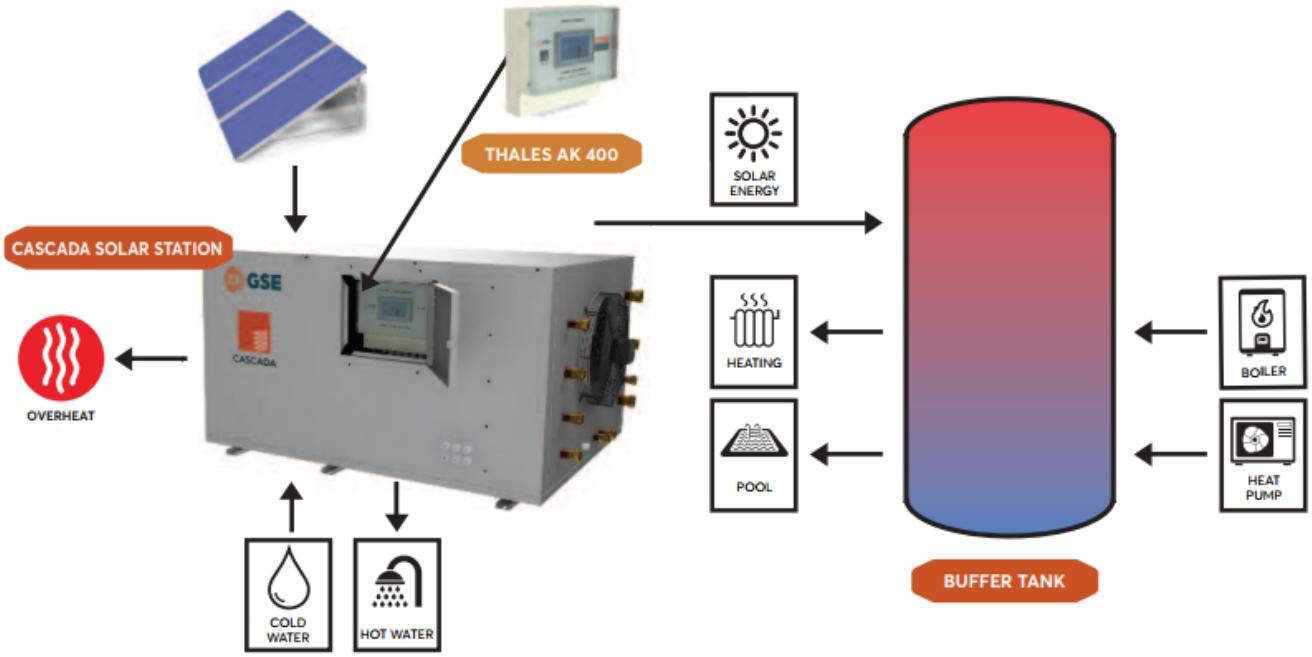
TECHNICAL SPECIFICATIONS FOR GSE CASCADA STATION FW-CF	
Casing Material	Stainless-Steel 304
Heat Exchanger*	GSE Cascada HE FW-CF (Counterflow)
Secondary Circuit Circulator (Fresh Water)	Wilo / Grundfos PWM
Primary Circuit Circulator (Energy)	Wilo / Grundfos PWM
Recirculation Circulator	Optional
Cooling Element Material	Copper with Aluminum Fins
Cooling Element Welding Type	Automated Welding
Primary Circuit Nominal Operating Pressure	3 bar
Primary Circuit Maximum Operating Pressure	6 bar
Secondary Circuit Nominal Operating Pressure	6 bar
Secondary Circuit Maximum Operating Pressure	12 bar
Maximum Operating Temperature	95°C
Three-way valve for Overheating Control	Copper, 24V
Fan	230V
Automation Control System*	THALES AK400 Control Panel with 4.3” touch Screen

* Detailed information about the heat exchanger is available in the GSE CASCADA heat exchanger brochure and the corresponding technical datasheets, while information regarding the control unit can be found in the GSE THALES automatic control systems brochure.

FEATURES

FEATURE	BENEFIT
In Line water heating	• ***Inhibits the growth of Legionella bacteria*** • ***Maximizes the lifespan of the installation***
Innovative control	• ***Full utilization of solar energy*** • ***Minimization of auxiliary energy source usage***
Integrated system for excess solar energy discharge	• ***Overheating protection for the entire installation***
Small temperature difference between the primary and secondary circuits	• ***Low charging temperatures*** • ***Low operating cost***
Outer casing made of SS304	• ***Can be installed in outdoor environments***
Design supported by a patented innovation	• ***High efficiency*** • ***Stable water supply at the desired temperature*** • ***Minimal pressure drop in the domestic water***
Conversion of existing solar Domestic Hot Water storage systems into FRESH WATER systems	• ***Creation of small or large centralized solar domestic hot water systems on rooftops, with the addition of just one pre-assembled solar station***
Prevention of scale buildup due to the innovative system design	• ***Long lifespan of the heat exchanger*** • ***Stable operation*** • ***Easy and quick maintenance*** *The design and geometry of the heat exchanger allow for scale removal through reverse flow cleaning, as well as complete drainage.*
Pre-assembled, robust, and compact construction	• ***Ideal for rooftop installations*** • ***Circulation pumps protected from weather exposure*** • ***Quick and hassle-free installation*** • ***No visual disturbance***

CONNECTION DIAGRAM

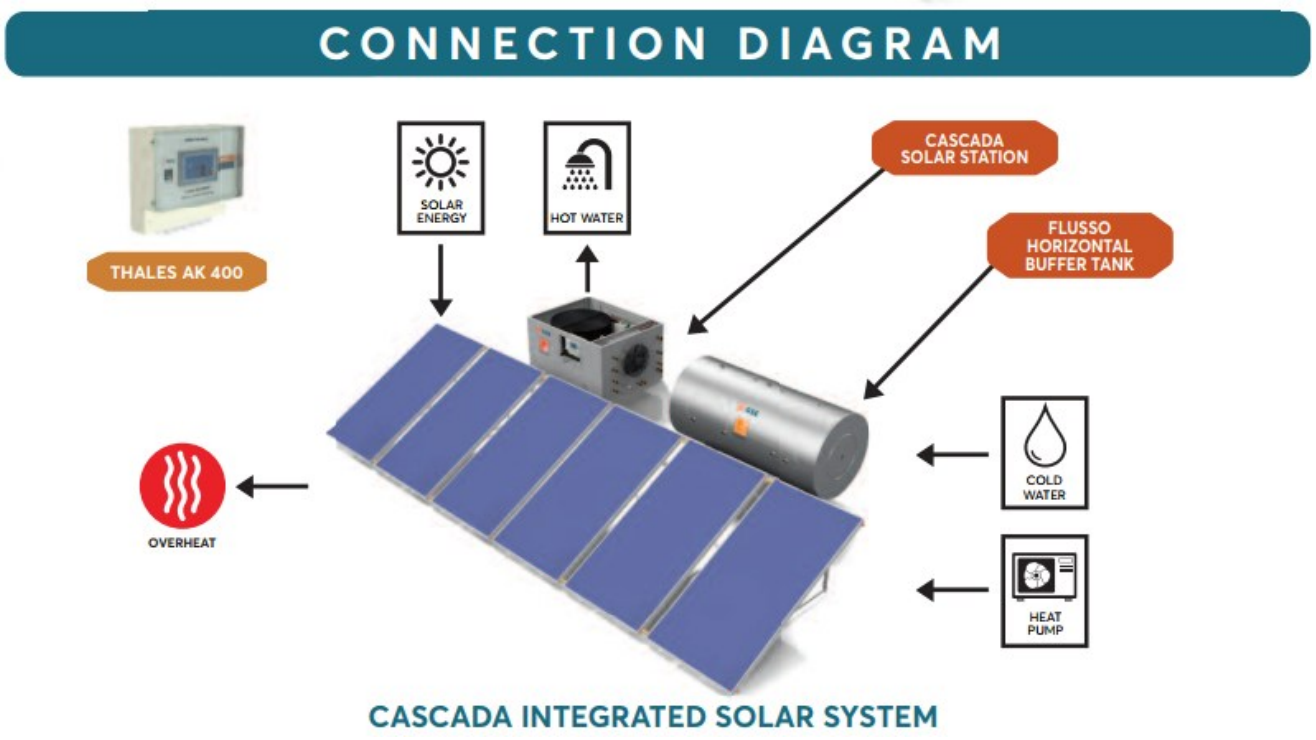


AUTOMATION FUNCTIONS* THALES AK400

ΛΕΙΤΟΥΡΓΙΕΣ	Προεπιλογή	Δυνατότητα
Control and operation via integrated 4.3'' touchscreen	√	
Real-time system operation display	√	
Control of domestic hot water temperature (set point 1, scheduling)	√	
Control of heat pump or boiler (Remote on/off with schedule, tank temperature setting set point 2)	√	
Control of electric resistance up to 3 kW (integrated relay with schedule, tank temperature setting set point 3)	√	
Control of variable speed water pump (PWM/0-10V) for heat transfer	√	
Recirculation control (on/off)	√	
Solar field control with variable speed water pump (PWM/0-10V)	√	
Future firmware upgrades		√

* Details about the automatic control systems are provided in the corresponding THALES brochure

SIGNIFICANT APPLICATIONS



The above diagram presents a characteristic application of the GSE CASCADA STATION FW-CF system with solar collectors and the GSE FLUSSO BF HOR stainless steel buffer tank(s).

Suggested combinations:

Indicative combinations	GSE CASCADA INTEGRATED SOLAR SYSTEM				
	400 INOX/SS	600 INOX/SS	900 INOX/SS	1200 INOX/SS	1800 INOX/SS
Buffer Tank	FLUSSO BF HOR 400	FLUSSO BF HOR 600	FLUSSO BF HOR 900	**2 X** GSE FLUSSO BF HOR 600	**2 X** GSE FLUSSO BF HOR 900
Solar Collectors Area (m^2)	7.5	10	15	20	30
Numbers of Solar Collectors	3	4	6	8	12
Fresh Water Flow Rate (m^3/h)	2	2	3	3	3
Useful Volume (lt)	392	550	859	1100	1718
Solar Station	GSE CASCADA STATION FW-CF 1/2		GSE CASCADA STATION FW-CF 1/3		

Thanks to the flexible combinations of these systems, customized solutions are available for DHW installations of any size, designed to meet any specific need.