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Solar station FlowCon C+ with integrated controller

USE in closed loop design only. The circulation unit is used on the primary circuit of solar heating systems to control the temperature in the hot water storage. The pump inside the unit is activated by the signal from the differential temperature regulator. In addition, this unit contains the functional and safety devices for optimum circuit control.

Your advantages:

All medium-bearing parts are made of brass.

All connections ¾" female.

With pre-assembled steel wall bracket.

Full port ball valve in return pipe.

Check valve inside the flow and return ball valve,
manual opener, thanks to 45° position of the ball valve handle, 200mm WC each, special design for solar systems, avoid any gravity circulation.

Large ball valve handles easy grip and visible closing position.

Air-Scoop in the supply line
for a permanent deaeration of the heat transfer medium.

Function-optimized design insulation made of durable elastic EPP;
100% insulation of the fittings – excellent pump ventilation and cooling.

Solar controller integrated into the insulation, pre-wired and splash-proof.

Solar safety assembly
pressure relief valve 6 bar / 87 psi, high-temperature pressure gauge 0-6 bar/0-90 psi, shut off valve, drain valve for flushing and filling, flat sealing connection for expansion tank.

Full metal solar thermometer, 0 - 160 °C / 32 - 320°F
can be pulled off, with immersion sleeve integrated in the ball valve.

Fully assembled with flat sealing union connections.

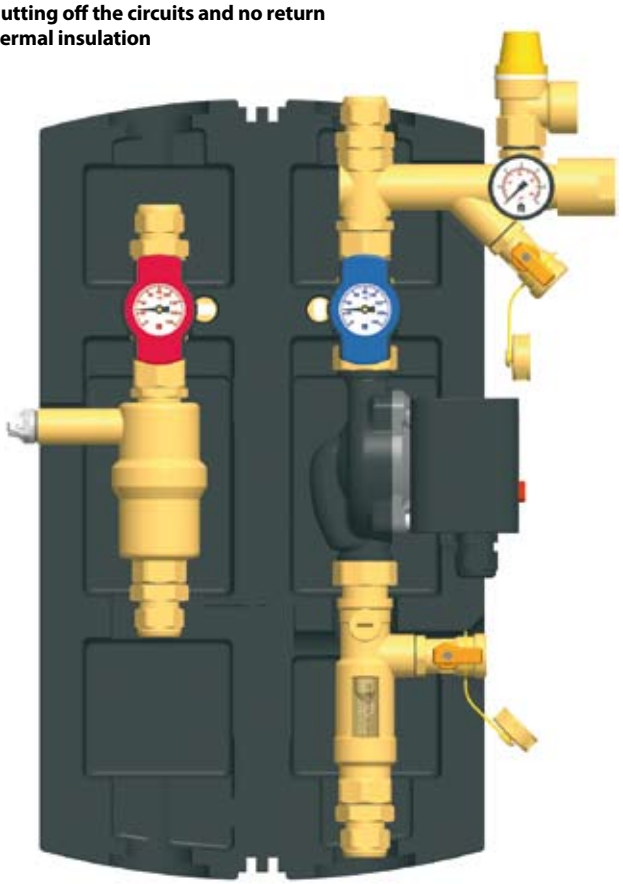
With three speed solar circulation pump by Wilo
without wire.

Pump can be completely isolated, no draining necessary during servicing.

Flowmeter
Flow quantity measuring device with adjustable flow quantity gauge and function control device, installed in the (cold) return - up to 130 °C / 266 °F heat resistant – two measurement ranges: 0.5–5 l/min or 1–13 l/min or 0.5-3.5 USgpm.

Flushing and filling unit integrated
two drain valves (at the flow meter and at the safety assembly) permit filling and flushing the system.

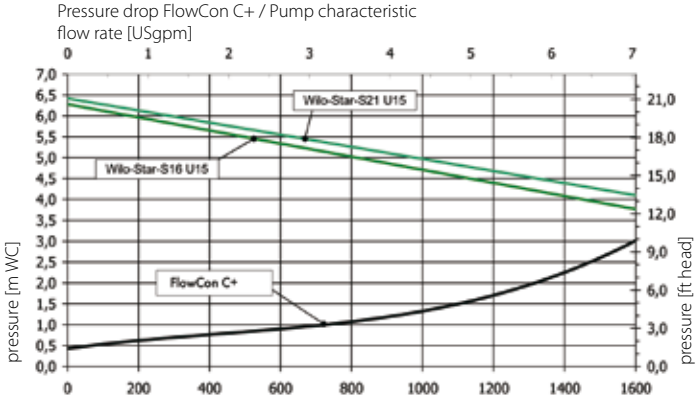
The unit components enable:
- **Medium circulation with specific pump**
- **Safety against pressure increase**
- **Accurate flow rate control**
- **Filling / draining the circuit**
- **Measuring the supply and return line temperature**
- **Separating the air contained in the circuit**
- **Shutting off the circuits and no return**
- **Thermal insulation**



TECHNICAL DATA FlowCon FA

Dimension		**DN 20 - ¾"**
Material	fittings	brass
	gaskets	EPDM / NBR
	insulation	EPP
	check valves	brass
Techn. data	max. pressure	10 bar / 145 psi
	max. temperature	130 °C / 266 °F, temporarily 160 °C / 320 °F
Equipment	check valves	2 x 200 mm WC **= 400 mm WC**
	flowmeter range	0.5 - 5 l/min 1 - 13 l/min or 0.5 - 3.5 USgpm
	pressure relief valve	6 bar / 87 psi, f.thermal solar syst.
	pressure gauge	0-6 bar / 0-90 psi, resistant to high temperatures
	thermometer	0-160 °C / 32-320 °F, full metal
	controller	Type 4 plus
Dimensions	connections	¾" female
	pipe-center distance	125 mm / 4 $^{15}/_{16}$"
	width of insulation	300 mm / 11 $^{7}/_{8}$"
	hight of insulation	480 mm / 18 $^{7}/_{8}$"

Pressure drop FlowCon C+ / Pump characteristic



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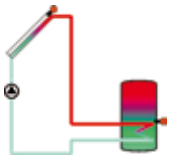
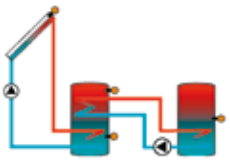
Solar station FlowCon C+ with integrated controller

The **controller Type BS Plus** is integrated in the insulation. It is designed for the application in various basic systems. This controller has 2 standard relay outputs and 4 sensor inputs for Pt1000 temperature sensors. The illuminated display with system monitoring (with blinking symbols for a clear allocation of the indicated data) permits a simple and clear appliance and function control. The controller is equipped with a storage temperature limit, an operation hours' count, a thermostat function, a heat metering as well as (selectable) pipe collector functions. V-Bus.
UL/CSA certified. Supplied with 4 Pt1000 sensors (Ø6 mm, 1 with silicon wire) and 4 immersion sleeves (1 x 60 mm, 2 x 100 mm and 1 x 150 mm long).

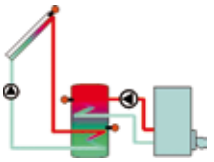
Overview of the functions	Controller type 4 plus
Indication	combined display as system monitor
Appliance	3 press buttons
Relay outputs	2 x standard
Sensor inputs	4, Pt1000
Operation hours' count	yes
Heat quantity count	yes
System choice	9 basic systems
Thermostat function	yes
Emergency shut-down	yes
Recooling function	yes
Solar collector cooling function	yes
Frost protection	yes
Special function for solar pipe collectors	yes



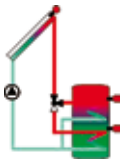
Solar system with 1 storage



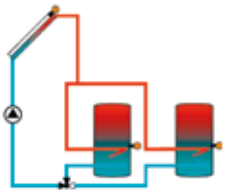
Solar system with 1 storage and heat exchange control



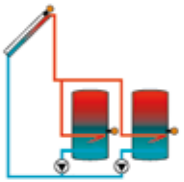
Solar system with1 storage and backup control



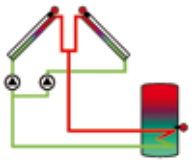
Solar system with stratified storage



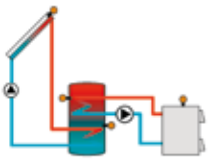
Solar system with 2 storages, valve logic



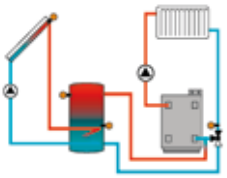
Solar system with 2 storages, pump logic



Solar system with east/west roof and 1 storage



Solar system with 1 storage and a solid fuel boiler



Solar system with temperature offset for heating circuit return

Range of application / Solar collector surface depending on the flowmeter and the operational mode (see explanations on page 39)

flow types in the solar collector field:	with flowmeter **0,5 - 5 l/min**	with flowmeter **1 - 13 l/min / 0.5-3.5 USgpm**
Low-Flow = 0,2 l / min. per m² collector surface	until **25 m²** collector surface	until **65 m²** collector surface
High-Flow = 0,5 l / min. per m² collector surface	until **10 m²** collector surface	until **26 m²** collector surface

Please note: In order to guarantee a trouble-free function it is necessary to carry out a hydraulic dimensioning / check of the solar system.

Illustration	Options	Pumps	Item #
	**FlowCon C+ metric** **flowmeter 1-13 l/min, temperature gauges in °C**	**Wilo Star S 16 U-15-130**, ½" copper connection	**609271NA01**
		Wilo Star S 21 U-15-130, ¾" copper connection	**609271NA02**
	FlowCon C+ imperial **flowmeter 0.5-3.5 USgpm, temperature gauges in °F**	**Wilo Star S 16 U-15-130**, ½" copper connection	**609271US01**
		Wilo Star S 21 U-15-130, ¾" copper connection	**609271US02**

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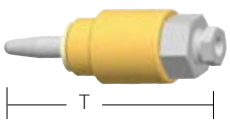
Solar station FlowCon - assembly accessories

Illustration	Description	Item #
	**Connecting set ¾" for expansion tank** On the solar station system "FlowCon" to connect the safety set ¾"; for max. tank diameter of 440 mm.	
	Stainless steel corrugated hose ¾" female - female x 2", wall bracket with fastening material, solar tank connecting coupling ¾", with BSP coupling	**437 509**
	As before, but tank connecting coupling with integrated cap valve ¾"	**437 510**
	Stainless steel corrugated hose ¾" female - female x 2", wall bracket with fastening material, solar tank connecting coupling ¾", with NPT coupling	**437 509NA**
	**Service unit for solar systems** With solar fluid fine filter (250 µ) As protection of the pump, the flow check valve(s) and the flow meter against dirt particles (e. g. solder residues and scales particles). For assembly inside the solar supply line, above the ball valve. Completely closable for servicing so that only a small amount of solar fluid has to be refilled. Connection to the solar station with self sealing screw connection ¾", outlet ¾" female.	
	Maintenance unit for solar sytems	**56701**
	**Connecting piece for sensor well** For thermowell with ½" male, up to 60 mm length 1" union nut with gasket, ¾" female, bushing ½"	
	Connecting piece for sensor well	**5660**
	**Thermowells** For the assembly of the temperature sensors inside the storage, collector etc.	
	self-sealing with o-ring, brass blank, for sensor Ø 5.5 mm, depth = 30 mm	**566 001**
	standard, chromed brass, for sensor Ø 6 mm, depth = 60 mm	**566 002**
	standard, chromed brass, for sensor Ø 6 mm, depth = 100 mm	**566 003**
	standard, chromed brass, for sensor Ø 6 mm, depth = 150 mm	**566 004**
	**Flush and drain kit** t-piece with counter nut, self-sealing with drain valve, for expanding the solar system with a flush and drain connection, assembly at the lowest point (drain unit).	
	1 piece DN 20 - ¾"	**31611NA**

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Solar station FlowCon - assembly accessories

Illustration	Description	Item #
	**Manually operated filling and injection pump** **Male = ½", 15 mm hose connection** Attainable pressure until approx. 4 bar, length: 175 mm	
	Manually operated filling and injection pump	**7061**
	**Manually operated filling and injection pump** **Male = ½", 15 mm hose connection** **Additional drain valve** Attainable pressure until approx. 4 bar, length: 225 mm	
	Manually operated filling and injection pump	**7062**
	**Flush and fill kit DN 20** **Consisting of:** Brass ball valve ¾" female, with red wing handle, with 2 drain valves with hose clip 15 mm **Additionally with:** 2 compression fittings with support sleeves, preassembled	
	DN 15 **for ½" mm copper pipe**	**565 151 NA**
	DN 22 **for ¾" mm copper pipe**	**565 221 NA**
	**Compression adaptors for copper pipe** **For the connection of ¾" solar stations – DN 20,** self-sealing with o-ring, additionally with support sleeve, **also appropriate for soft copper pipes! Applicable until 150 °C / 302 °F!**	
	¾" male x 15 mm	**561 215**
	¾" male x 22 mm	**561 222**
	**Soldering inserts ¾" male for copper pipe** For the connection of solar stations ¾" – DN 20	
	¾" to 15 mm: soldering inserts ¾" x ½"	**206 212**
	¾" to 22 mm: soldering inserts ¾" x ¾"	**206 234**

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Features of PAW solar pump modules

PAW solar pump modules and heat transfer systems are designed for use in closed loop solar thermal systems working with glycol.

- Integrated in the pump module are a lot of functions which make the installation easier, prevent installation mistakes and improve the performance of your solar thermal plant.

Features of every unit are

- all water-carrying parts are made of brass
- all sealing components are high temperature resistant up to 266 °F / 130 °C (320 °F / 160 °C - short term)
- Flowmeters are adjustable to set the correct flow rate. High quality bora silicate glass.
- Check valves are integrated in every line in the solar loop. They are made of brass for high pressure and temperature resistance.
- Air scoops in the supply line help to deaerate your system easily
- All pumps used in PAW solar pump modules are UL-certified and equipped with 3-speed motors.

Range of application of the solar stations:

Solar thermal systems are divided into "High-Flow" and "Low-Flow" systems depending on their operational mode. "High-Flow" systems are characterized by a flow rate of 25 - 40 l/m² solar panel surface and hour which corresponds to 0.42 - 0.67 l/(m² x min). "Low-Flow" systems are operated with 10 - 20 l/ m² solar panel surface and hour which corresponds to 0.17 - 0.33 l/(m² x min).

The flow rate being circulated in the system depends on the operational mode, the solar panel surface as well as on the performance of the heat exchanger (secondary). The dimensioning of the circulation pump depends on the flow rate and the pressure losses which occur in the heat exchanger, the solar panels and inside the fittings of the system.
In the description of the products the ranges of application/solar panel surfaces are mentioned.
For low-flow systems a specific flow rate of 0.2 l/(m² x min) was assumed; for high-flow systems we calculated with 0.5 l/(m² x min).
These values can only serve as a first help for the dimensioning. It is always essential to carry out a complete dimensioning of the system!

PAW air scoop

PAW flowmeter

PAW high temperature check valve

PAW handle with integrated temperature gauge

PAW isolation valve

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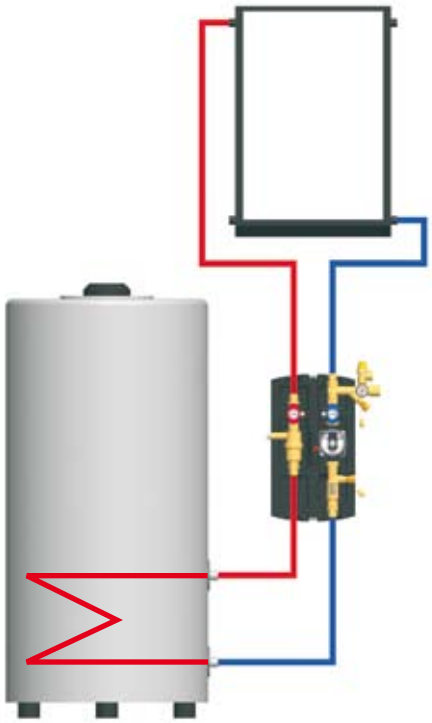
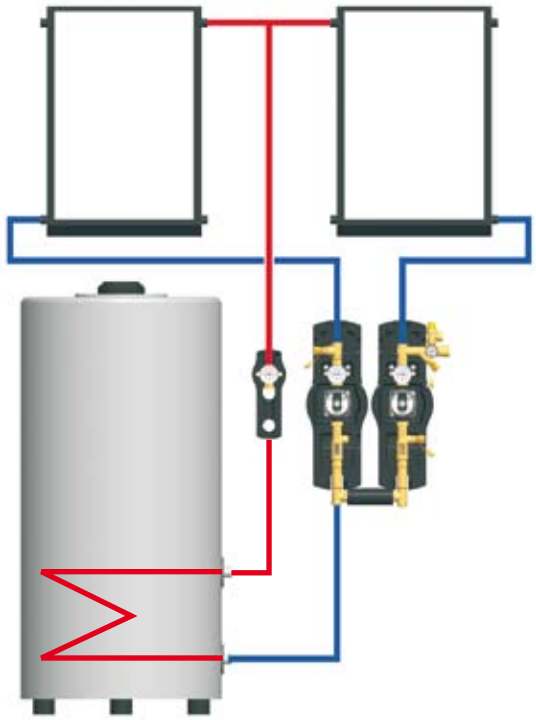
Solar systems with PAW pump modules

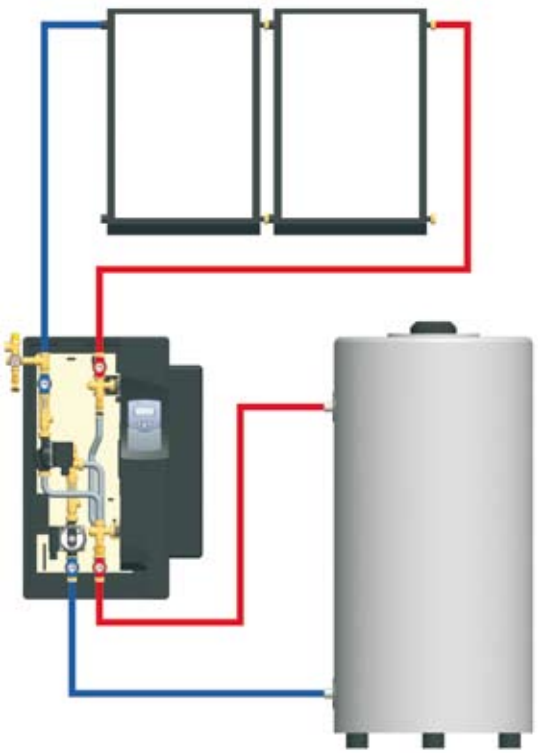
FlowCon , FlowCon C , FlowCon MAX
One solar panel field, single storage tank with integrated heat exchanger



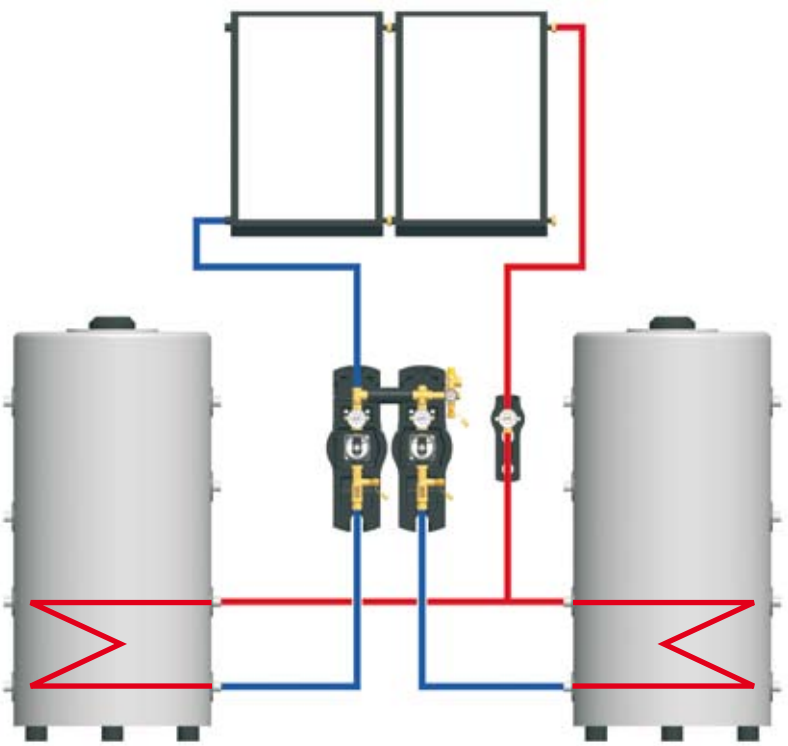
FlowCon D2F
Two independantly operated solar panel fields, one storage tank with integrated heat exchanger



Solex
One solar panel field, one buffer storage tank without heat exchanger



FlowCon S2F
One solar panel field, two independantly or parallelly operated storage tanks with integrated heat exchanger



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