

## Solar station FlowCon S2F

**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. Module with two pumps, suitable for two solar storages. The pumps inside the unit are 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 supply and return ball valve,** manual opener, 3 x 200 mm WC each, special design for solar systems, avoid any gravity circulation. The check valves are integrated into the ball valves so that each line has a total pressure drop of 400 mm WC.

**Ball valves are key-actuated**  
 easy handling, no danger of burnings

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

**Application**

In a system with 2 storage tanks, the pumps are connected in order to switch between the storage tanks. This assembly allows a parallel charge of both storage tanks.

**Solar safety assembly**

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

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

**Fully assembled with flat sealing union connections**

**With solar circulation pump by Wilo**  
 pre-assembled, without wire

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

**2 flowmeters**

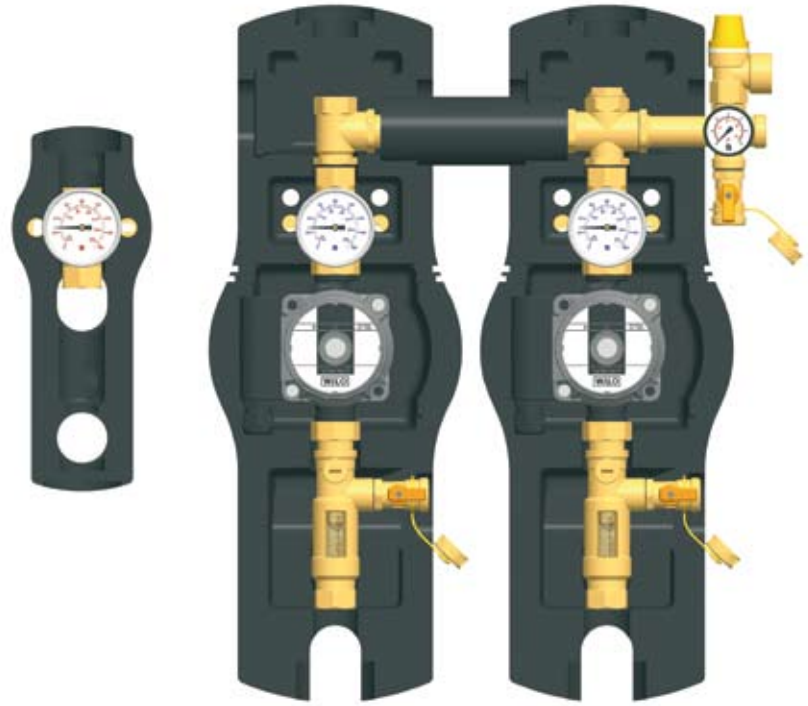
Flow quantity measuring devices with adjustable flow quantity gauge and function control device, installed in the (cold) return - up to 130 °C / 266 °F heat resistant – measurement range: 1 – 13 l/min.

**Flushing and filling unit integrated**

three drain valves (at the flow meter or at the ball valves below the pump 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



**FlowCon S2F**

TECHNICAL DATA FlowCon S2F		
<b>Dimension</b>		<b>DN 20 - ¾"</b>
<b>Material</b>	fittings	brass
	gaskets	Klingersil / EPDM
	insulation	EPP
	check valves	brass
<b>Techn. data</b>	max. pressure	10 bar / 145 psi
	max. temperature	130 °C / 266 °F, temp. 160 °C / 320 °F
<b>Equipment</b>	check valves	2 x 200 mm WC <b>= 400 mm WC per line</b>
	flowmeter range	<b>type S2F</b> 1 - 13 l/min
	pressure relief valve	6 bar / 87 psi, for thermal solar systems
	pressure gauge	0 - 6 bar / 0-90 psi, resistant to high temperatures
	thermometer	0-160 °C / 32-320 °F, full metal
<b>Dimensions</b>	connections	¾" female
	pipe-center distance	125 mm / 4 <sup>29</sup> / <sub>32</sub> "
	width of insulation	550 mm / 21 <sup>21</sup> / <sub>32</sub> "
	height of insulation	560 mm / 22 <sup>1</sup> / <sub>16</sub> "

## Solar station FlowCon S2F

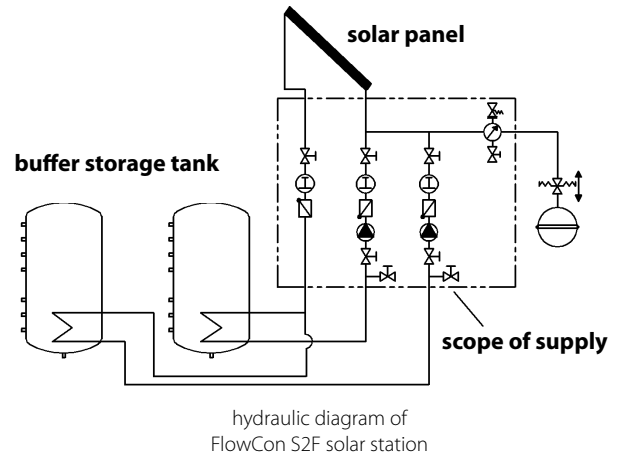
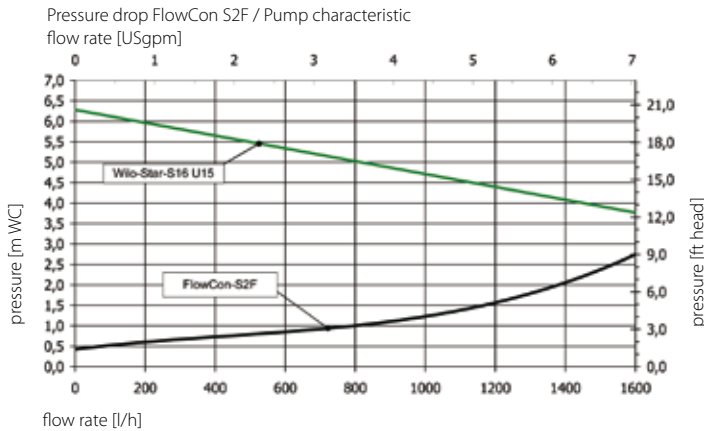



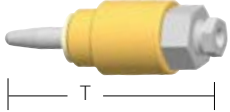








Illustration	Options	Pumps	Item #
	<b>FlowCon S2F metric</b> 2 storages, flowmeter 1 - 13 l/min	<b>2 x Wilo Star S 16 U-15 - 130</b>	<b>608165 01 NA</b>
	<b>FlowCon S2F imperial</b> 2 storages, flowmeter 0.5 - 3.5 USgpm	<b>2 x Wilo Star S 16 U-15 - 130</b>	<b>608165 US01</b>
Illustration	Accessories		Item #
	<b>Connecting set 3/4" for expansion tank</b> <b>Stainless steel corrugated hose</b> 3/4" female - female x 2", wall bracket with fastening material, solar tank connecting coupling 3/4", with BSP coupling		<b>437 509</b>
	As before, but tank connecting coupling with integrated cap valve 3/4"		<b>437 510</b>
	<b>Stainless steel corrugated hose</b> 3/4" female - female x 2", wall bracket with fastening material, solar tank connecting coupling 3/4", with NPT coupling		<b>437 509NA</b>
	<b>Compression-ring couplings for copper pipe</b> <b>For the connection of 3/4" 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!</b>		
	<b>3/4" male x 1/2" copper pipe</b>		<b>561 212</b>
	<b>3/4" male x 3/4" copper pipe</b>		<b>561 222</b>
	<b>Soldering inserts 3/4" male for copper pipe</b>		
	<b>3/4" to ø x 1/2" copper pipe</b>		<b>206 212</b>
	<b>3/4" to ø x 3/4" copper pipe</b>		<b>206 234</b>
	<b>Adaptor nipple</b>		
	<b>3/4" male x outlet 3/4" NPT male - flat sealing</b>		<b>548 310 NA</b>

## Solar station FlowCon - assembly accessories

Illustration	Description	Item #
	<b>Connecting set 3/4" for expansion tank</b> On the solar station system "FlowCon" to connect the safety set 3/4"; for max. tank diameter of 440 mm.	
	<b>Stainless steel corrugated hose 3/4" female - female x 2", wall bracket with fastening material, solar tank connecting coupling 3/4", with BSP coupling</b>	<b>437 509</b>
	As before, but tank connecting coupling with integrated cap valve 3/4"	<b>437 510</b>
	<b>Stainless steel corrugated hose 3/4" female - female x 2", wall bracket with fastening material, solar tank connecting coupling 3/4", with NPT coupling</b>	<b>437 509NA</b>
	<b>Service unit for solar systems</b> 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 3/4", outlet 3/4" female.	
	<b>Maintenance unit for solar systems</b>	<b>56701</b>
	<b>Connecting piece for sensor well</b> For thermowell with 1/2" male, up to 60 mm length 1" union nut with gasket, 3/4" female, bushing 1/2"	
	<b>Connecting piece for sensor well</b>	<b>5660</b>
	<b>Thermowells</b> 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	<b>566 001</b>
	standard, chromed brass, for sensor Ø 6 mm, depth = 60 mm	<b>566 002</b>
	standard, chromed brass, for sensor Ø 6 mm, depth = 100 mm	<b>566 003</b>
	standard, chromed brass, for sensor Ø 6 mm, depth = 150 mm	<b>566 004</b>
	<b>Flush and drain kit</b> 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).	
	<b>1 piece DN 20 - 3/4"</b>	<b>31611NA</b>



## Solar station FlowCon - assembly accessories

Illustration	Description	Item #
	<p><b>Manually operated filling and injection pump</b>  <b>Male = 1/2", 15 mm hose connection</b>            Attainable pressure until approx. 4 bar, length: 175 mm</p>	
	<b>Manually operated filling and injection pump</b>	<b>7061</b>
	<p><b>Manually operated filling and injection pump</b>  <b>Male = 1/2", 15 mm hose connection</b>  <b>Additional drain valve</b>            Attainable pressure until approx. 4 bar, length: 225 mm</p>	
	<b>Manually operated filling and injection pump</b>	<b>7062</b>
	<p><b>Flush and fill kit DN 20</b>  <b>Consisting of:</b>            Brass ball valve 3/4" female, with red wing handle, with 2 drain valves with hose clip 15 mm</p> <p><b>Additionally with:</b>            2 compression fittings with support sleeves, preassembled</p>	
	<b>DN 15 for 1/2" mm copper pipe</b>	<b>565 151 NA</b>
	<b>DN 22 for 3/4" mm copper pipe</b>	<b>565 221 NA</b>
	<p><b>Compression adaptors for copper pipe</b>  <b>For the connection of 3/4" 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!</b></p>	
	<b>3/4" male x 15 mm</b>	<b>561 215</b>
	<b>3/4" male x 22 mm</b>	<b>561 222</b>
	<p><b>Soldering inserts 3/4" male for copper pipe</b>            For the connection of solar stations 3/4" – DN 20</p>	
	<b>3/4" to 15 mm: soldering inserts 3/4" x 1/2"</b>	<b>206 212</b>
	<b>3/4" to 22 mm: soldering inserts 3/4" x 3/4"</b>	<b>206 234</b>



## 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/m<sup>2</sup> solar panel surface and hour which corresponds to 0.42 - 0.67 l/(m<sup>2</sup> x min). "Low-Flow" systems are operated with 10 - 20 l/m<sup>2</sup> solar panel surface and hour which corresponds to 0.17 - 0.33 l/(m<sup>2</sup> 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/(m<sup>2</sup> x min) was assumed; for high-flow systems we calculated with 0.5 l/(m<sup>2</sup> 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



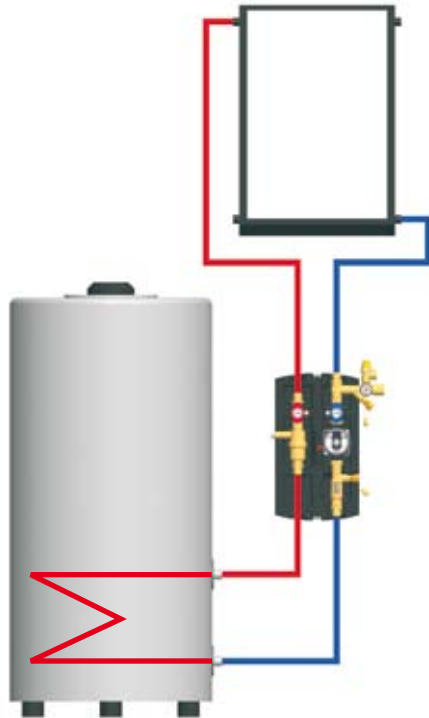
PAW isolation valve



## Solar systems with PAW pump modules

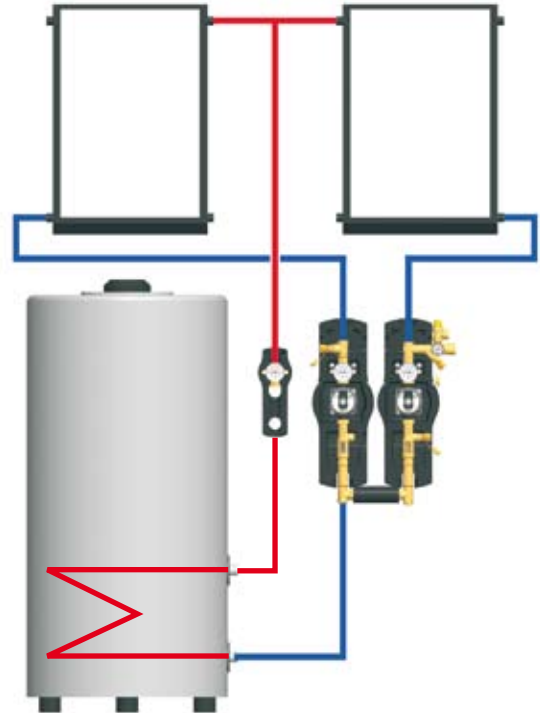
### FlowCon , FlowCon C , FlowCon MAX

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



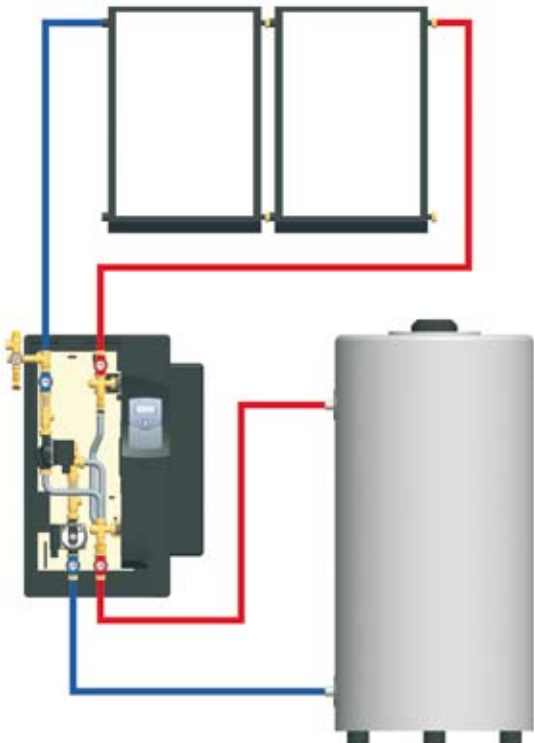
### FlowCon D2F

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 parallely operated storage tanks with integrated heat exchanger

