

SOLAR COMPONENTS

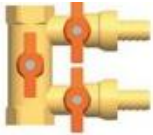
HEAT TRANSFER FLUID

Both Tyfocor and Antifrogen HT are ready mixed antifreeze suitable for new solar systems. Tyfocor LS has a continuous temperature capacity of 170° C. Protection to -28 deg C Antifrogen HT has a continuous temperature capacity of 200° C. Protection to -28 deg C



Specifications	Code	Price €
Heat Transfer Fluid 10L	020-CHE-001	45.00

PRESSURE RELIEF HOSE



FILLING & FLUSHING UNIT

Code	Price €
020-56451	50.00



Code	Price €
020-29000640	24.38

PIPE FLASHINGS



Type	Base Dimension (mm)	Temp Resistance	Code	Price €
Acrylead/ Silicone 5-50mm	410 x 490	-60°C - +240°C	020-VEN-001	45.00
Aluminium/Silicone 45-90mm	450 x 600	-60°C - +240°C	020-EVE-005	33.58
Aluminium/Silicone 5-50mm	450 x 600	-60°C - +240°C	020-VEN-003	39.86
Silicone	115 x 115	-60°C - +240°C	020-VEN-004	10.50

SOLAR PIPING



Pre-insulated Flexible Metal Solar Piping

The Metal Flex Pipe is a flexible easy to use stainless steel pipe system used to connect solar collectors to the pump station and cylinder enabling pipework to be run with minimal joints. With a UV resistant outer sheath, integral sensor cable and 13mm thick high temperature insulation, this is a high quality piping system that is quick and easy to install. The pipe can withstand temperatures of up to 175°C and complies with industry regulations.



Cut tube



Snap on circlip



Tighten to form flange



Insert washer



Screw fitting and tighten



Job Done

Price per roll includes 4 Backnut, circlips and washers



Specifications	Code	Price €
2in2 DN16 - 10m	020-FO31016IE	225.00
2in2 DN16 - 25m	020-FO32516IE	562.50
2in2 DN16 - 10m	020-FO31016ME	263.25
2in2 DN16 - 15m	020-FO31516ME	384.75
2in2 DN16 - 25m	020-FO32516ME	627.75
2in2 DN20 - 15m	020-FO31520NEO	590.63
2in2 DN20 - 25m	020-FO32520NEO	971.25
2in2 DN16 - 50m*	020-WS125016	328.13
2in2 DN20 - 50m*	020-WS125020	412.50
1m22mm plain tube	020-SE111022	29.06

*No Insulation on Piping

SOLAR FITTINGS

MOUNTING BRACKETS



Specifications	Code	Price €
DN12 (pack of 4)	020-F440212	15.00
DN16 (pack of 4)	020-F440216	15.00
DN20 (pack of 4)	020-F440220	15.00

END FITTINGS



Specifications	Code	Price €
DN12 (pack of 2)	020-S304012	12.20
DN16 (pack of 2)	020-S304016	18.75
DN20 (pack of 2)	020-S304020	30.00

BACKNUT, CIRCLIP, WASHER



Specifications	Code	Price €
DN12	020-S300312	3.75
DN16	020-S300316	3.75
DN20	020-S300320	5.63

SMOOTH TUBE ADAPTOR



Specifications	Code	Price €
$\frac{3}{4}$ " male x 22mm	020-F372234	5.63
$\frac{1}{2}$ " female x 22mm	020-F372244	6.57

COMPRESSION ADAPTOR



Specifications	Code	Price €
22mm x $\frac{3}{4}$ " male	020-F372216	6.56
15mm x $\frac{1}{2}$ " female	020-F371215	3.75

SELF SEALING DOUBLE NIPPLE



Specifications	Code	Price €
$\frac{1}{2}$ " - $\frac{1}{2}$ "	020-F340012	2.54
$\frac{3}{4}$ " - $\frac{3}{4}$ "	020-S340016	6.19
$\frac{3}{4}$ " - $\frac{1}{2}$ "	020-S341234	5.63
$\frac{3}{4}$ " - 1"	020-S48340	6.56

MALE IRON



Specifications	Code	Price €
$\frac{3}{4}$ " - $\frac{1}{2}$ "	020-S391234	5.63
1" - $\frac{3}{4}$ "	020-S393411	7.50

REDUCING BUSHING



Specifications	Code	Price €
$\frac{3}{4}$ " x $\frac{1}{2}$ "	020-F381234	2.82

TEES



Specifications	Code	Price €
$\frac{3}{4}$ " $\frac{3}{4}$ " $\frac{3}{4}$ "	020-S363434	6.57
$\frac{3}{4}$ " $\frac{3}{4}$ " $\frac{1}{2}$ "	020-S361234	9.38

1" FEMALE - $\frac{3}{4}$ " MALE



Specifications	Code	Price €
$\frac{3}{4}$ " M	020-S384416	3.75

COLLECTOR COUPLER



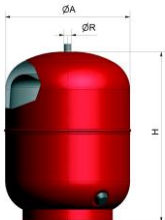
Specifications	Code	Price €
1" x 1"	020-SUN-004	7.50
$\frac{3}{4}$ " x $\frac{3}{4}$ "	010-02710110	7.50

RIGHT ANGLE FITING WITH PIPE UNION



Specifications	Code	Price €
$\frac{3}{4}$ " M	080-01270122	7.22

SOLAR VESSELS



Model	Capacity	Code	Price €
MB5 SOL*	5	030-MB5SO	28.35
MB8 SOL*	8	030-MB8SO	29.40
MB12 SOL	12	030-MB12SO	41.58
MB18 SOL	18	030-MB18SO	45.15
MB25 SOL	25	030-MB25SO	58.80
MB35 SOL	35	030-MB35SO	80.85
MB50 SOL	50	030-MB50SO	131.25

EXPANSION VESSEL CONNECTION SET

Description	Code	Price €
Mounting Bracket Set	020-28000460	30.32



L Bracket for mounting vessel on wall.
 $\frac{3}{4}$ " x $\frac{3}{4}$ " with non return valve.
Gasket and wall plugs included



Stainless Steel flexible tube
for connecting vessel to safety group. $\frac{3}{4}$ " threading.

SOLAR PUMP STATIONS

Pump stations are an integral part of an efficient solar system. The RESOL range of pump stations makes installation and operation easy because the unit has been pre-assembled and is ready to plug in. All the pump stations are housed in an insulated casing and offer many features. This brochure contains a selection of the most common models in this range. Please consult C-Mc Energy for the most suitable model for your specific requirements.

WATTS FLOWBOX PUMPING STATION



- Twin line solar pump station prepared for integration with the RESOL DeltaSol BS.
- Thermometers for flow and return
- Return flow line with ball valve and adjustable non-return valve
- Flowmeter with scale
- Safety valve and manometer
- Fill/Drain valve for filling and flushing system
- Wall mounting kit with screws and dowels

Model	Code	Price €
WATTS Flowbox	020-3504810	312.50

FLOWCON D2F



- Three line pumping station for systems with 2 collector fields (e.g. east/west facing)
- Flow and return thermometers
- Dial pressure gauge
- 3 or 6 bar pressure relief valves
- Flowmeter
- Filling and flushing unit
- Wall mounting kit

Model	Code	Price €
Flowcon D2F	020-608175WS6	750.00

FLOWCON S2F



- Three line pump station for systems with 2 stores
- Specifications as per the D2F

Model	Code	Price €
Flowcon S2F	020-608165WS6	750.00

FLOWCON DHE

Winner of the Inter Solar Design Award 2009

- Twin line pump station incl. DeltaSol D controller
- Ultra fast and precise digital sensors measuring pressure, temperature and flow rate



- Flow and return thermometers
- 6 bar PRV with manometer
- Integrated air-stop, isolation and check valves
- Built in 'leakage' and 'over pressure' adjustable safety controls that shut the system down if the pressure is too low (<0.7 bar) or high (>5.5 bar).
- New controller display that can show system status, measured values and balanced values

Model	Code	Price €
Flowcon DHE	020-35210037	843.75

Please note the integrated filling and flushing loop is sold separately.

SOLAR / HEATING SYSTEM CONTROLLERS

Solar systems are operated and controlled by solar controllers. The RESOL controllers initiate switching processes depending on thermal, hydraulic and environmental conditions. RESOL controllers offer a variety of options and functions for the optimum use of individual solar and heating systems.

WATTS SOLAR CONTROLLER



Model	Code	Price €
Watts Solar Controller	020-P-3491	177.05

DELTA SOL BS3



Features of the BS range include:

Flashing symbols for sensors, pumps and valves. Energy measurement capability • Easy adjustment of control parameters via 3 button pad • Thermostat function (to divert excess heat or supply back-up heat) • Frost protection, system cooling, •Special evacuated tube collector operating functions

DeltaSol BS 3 As above but also includes time controlled thermostat and is equipped with the RESOL VBus for bidirectional communication with PC or for datalogging.

Model	Code	Price €
Delta Sol BS3 Full Kit	020-11542073	210.00

DELTA SOL M



The **Delta Sol M** is suitable for solar and heating systems. 9 relay outputs and 15 sensor inputs. Multi lingual menu. Up to 2 calorimeters and control of a weather compensation heating circuit. Adjustable system parameter and add-on options (menu driven), balance and diagnostic functions. DeltaSol M is equipped with the RESOL VBus for bidirectional communication with PC or for datalogging

Model	Code	Price €
DeltaSol M Full kit	020-11599023	643.13

DELTA SOL MX / DELTA SOL BX



The **DeltaSol® BX** is equipped with four relay outputs as well as two PWM outputs for the speed control of energy-saving high-efficiency pumps; one of the PWM outputs can be converted into a 0-10 V signal output. Additionally, the controller is equipped with five Pt1000 sensor inputs, two analog Grundfos sensor inputs, an impulse input as well as a supplemental output for the connection of an actuator. The integrated SD memory card slot enables an easy datalogging to an SD memory card as well as a quick and effortless transfer of logged system data to a PC. The extra-large display offers a more precise visualisation of the system status. Pre-defined functions allow easier parametrisation of the system; functional additions such as a drainback option broaden the range of applications. The

DeltaSol® BX is also equipped with a RESOL VBus®

Model	Code	Price €
Delta Sol BX	020-11545013	262.50
Delta Sol MX	020-11599213	696.15

The **DeltaSol® MX** is equipped with 13 relay outputs, four PWM outputs for the speed control of energy-saving high-efficiency pumps; two of the PWM outputs can be converted into 0-10 V signal outputs. Additionally, the controller has one frequency input, three impulse inputs as well as a range of different sensor inputs. Up to four extension modules can be connected via the RESOL VBus®. The integrated SD memory card slot enables an easy datalogging to an SD memory card as well as a quick and effortless transfer of logged system data to a PC. The large full graphic display allows the direct display of balance and progression diagrams. Pre-defined functions allow easier parametrisation of the system; functional additions such as a drainback option broaden the range of applications.

MEASURING INSTRUMENTS

GA3 / SMART DISPLAY SD3



The large display GA3 and the Smart Display SD3 are wall mounted display modules used for visualising the collector temperature, storage temperature and the energy yield of a solar thermal system via one 6-digit and two 4-digit 7-segment display. Compatible with controller through RESOL VBus®

Model	Dimensions	Code	Price €
GA3	530x630x100mm	020-18000579	1499.00
Smart Display	150x165x24mm	020-18000493	249.00

DATALOGGER DL2



This module acquires and stores large amounts of data (such as measuring and balance values of the solar system) over long periods. The DL2 can be configured and read-out with a standard internet browser via its integrated web interface. To transmit data stored in the internal memory of the DL2 to a PC, an SD card can be used. The DL2 is appropriate for all controllers with RESOL VBus®. The datalogger can be connected directly to a PC or router for remote access, therefore enabling system monitoring for yield monitoring or for diagnostics of faults.

Model	Code	Price €
DL2	020-18000710	328.00

FLOWMETER V40



The RESOL V40 is an instrument for measuring the flow of water or water-glycol-mixtures and can be connected directly to the controller for heat quantity balancing. After a specific volume has passed, the V40 sends an impulse to the controller. The heat quantity used is calculated from these impulses and the temperature difference measured

between flow and return using pre-defined parameters (glycol type, concentration, heat capacity etc.). The temperature sensors are delivered with immersion sleeves and can be easily installed into flow and return by means of a T-piece

Model	Code	Price € €
V40 - 0.6	020-28001100	215.63
V40 - 1.6	020-28001110	215.63
V40 - 2.5	020-28001120	215.63
V40 - 3.5	020-28001130	487.50
V40 - 6.0	020-28001140	487.50
V40 - 15.0	020-28001260	909.38

MINI DIGITAL THERMOMETER



Battery operated mini digital thermometer with measuring sensor.

Model	Code	Price €
RTM1	020-23600020	26.25

TEST BOX



A solar system will work more efficiently if maintained and serviced regularly.

The test box is a professional service box containing tools for checking solar thermal systems quickly and easily. Problems affecting system operation can be detected reliably with the help of these measuring and testing devices.

Model	Code	Price €
Test Box	020-29000293	356.25

Contents

- Test and indication badges
- Compass
- pH-test strips
- Screwdriver with voltage control
- Mini screwdriver
- Manometer
- Handheld refractometer
- Digital multimeter

VALVES

VA22



This is a 2 port motor open, motor close ball valve with operating time approx. 30 seconds. Easily changed from normally open to normally closed and has an auxiliary relay. Temperature range up to 120°C. Available in ¼" and 1"

Model	Code	Price €
DN20	020-27000170	163.13
DN25	020-27000180	178.13

VA32



This is a 3 port diverter valve with the same characteristics as the VA22.

Model	Code	Price €
DN20	020-27000190	181.88
DN25	020-27000200	189.38
DN32	020-27000310	208.13

NON RETURN VALVE



Model	Max temp	Pressure	Code	Price €
¾" PAW spring pattern	220°C	10 bar	020-12111	30.00
¾" swing pattern	186°C	10.5 bar	020-14501	33.75

THERMOSTATIC MIXING VALVE for sanitary water for solar installations



Technical data: Max pressure: 10bar
 Max input temperature: 100°C
 Regulation range: 30-65°C

Model	Code	Price €
¾" F	020-SUN-002	64.85
¾" F Solar	080-09089410	83.16
1" F Solar	080-09089408	91.12

SELF ACTUATED THERMOSTATIC DIVERTER VALVE FOR DOMESTIC HOT WATER AND SOLAR SYSTEMS



Technical data: Max pressure: 10bar
 Max input temperature: 100°C

Model	Code	Price €
1" M	080-02710560	75.56

SENSORS

OVER VOLTAGE PROTECTION



Overvoltage protection for temperature sensors. We recommend installing this overvoltage protection to the collector sensors in order to avoid damage caused by lightning.

Model	Code	Price €
SP1	020-18011010	20.63

INDOOR TEMPERATURE SENSOR



For installation on planar surfaces

Model	Code	Price €
FRP11	020-15500300	29.06

CLAMP ON PIPE SENSOR



PVC cable for surface mounting on tubes. Includes pipe clip. Temperature range -10...+80°C

Model	Code	Price €
FRP21	020-15500540	29.06

OUTDOOR TEMPERATURE SENSOR



The FAP13 is used for measuring the outdoor temperature with a platinum measuring element. The FAP13 is placed in a weather resistant housing with outstanding design and is designed for mounting outdoors. Cable glands for the sensor cables at the bottom of the housing allow easy installation.

Model	Code	Price €
FAP13	020-15500810	37.50

SOLAR CELL



The solar cell CS10 is used for measurement of the current solar irradiation intensity. Depending on the controller, the sensor can also be used for additional plausibility control or direct control. The connection cable can be extended to up to 100 m.

Model	Code	Price €
CS10	020-15100320	75.00

HEAT CONDUCTIVE PASTE



For installation of sensors (as flatscrew or pipe sensor) into the immersion sleeves, the heat conductive paste has to be used for a good heat transfer.

Model	Code	Price €
HCP	020-28000010	2.00

T22



T-piece sensor 22 mm with FKP 5,5 temperature sensor and TH30 immersion sleeve

Model	Code	Price €
T22	020-15500580	37.50