ECOFIT ENERGY SYSTEMS LTD
SPECIALISTS IN UNDERFLOOR HEATING AND SOLAR SYSTEMS

UNDERFLOOR HEATING OPERATIONS AND MAINTENANCE

GUK REFERENCE NUMBER: 10647

PROJECT NAME: PARC EIRIN

Ecofit Energy Systems supported by
Giacomini UFH design and products

GIACOMINI
WATER E-MOTION

CONTENT

PROJECT DETAILS

SYSTEM TYPE	SOLID
MANIFOLD TYPE	DISTRIBUTION
PIPE TYPE	PE-X
VOLTAGE	V_230
CONTROL UNIT	N_A
THERMOSTATS 1	NA
ACTUATOR	_
ADDITIONAL ITEMS	_
THERMOSTATS 2	NA
ACTUATOR	_
ADDITIONAL ITEMS	_
THERMOSTATS 3	NA
ACTUATOR	_
ADDITIONAL ITEMS	_
THERMOSTATS 4	NA
ACTUATOR	_
ADDITIONAL ITEMS	_

SELECTIONS COMPLETE? ☑ **FORMAT PAGES** ☑

HYPERLINKS ☑ ☑ **FORMAT LINKS** ☑

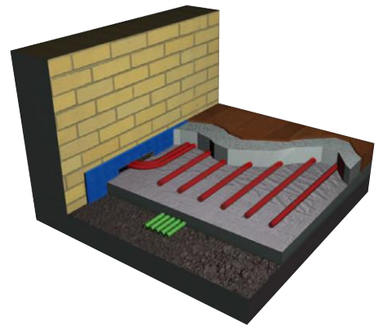
SYSTEM DESCRIPTION

Once the Giacomini underfloor heating system has been installed, pressure tested and commissioned the system is then ready for its normal operation and should no longer need any significant further action.

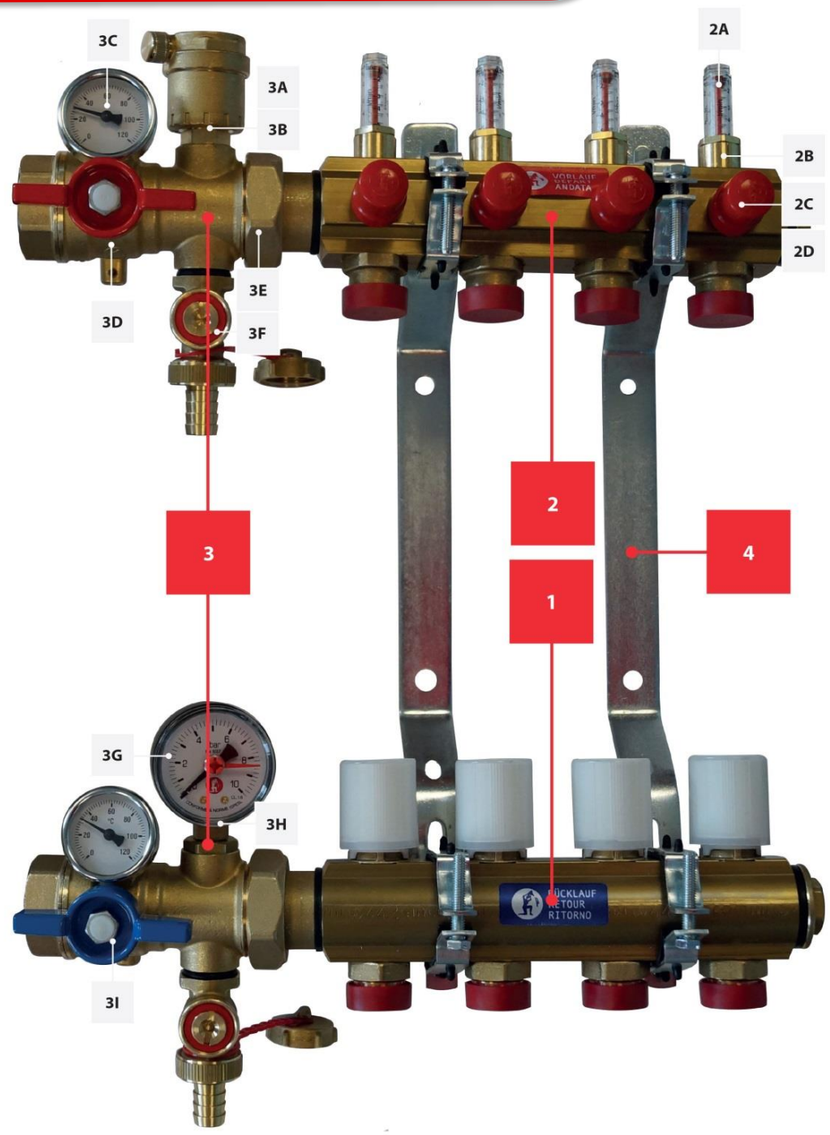
SOLID floor underfloor heating systems include all floor constructions that have underfloor heating pipework embedded in concrete or screed. They include concrete structural floors and concrete screed floors, as well as block and beam floors with a screed finish.

The sub-base will usually be made up of two layers, the first being a compact or consolidated hard-core, which will have a sand binding layer on top. A damp proof membrane (DPM), typically 1200 gauge, is usually included at this level; this is essential to stop moisture transfer into the concrete base. Insulation is then laid. This is necessary to meet current building 'U' values and to comply with current Building Regulations, as well as to reduce downward heat loss.

Giacomini pipework is then laid, held in place with polypropylene U-Clips and the screed. The makeup and thickness of the screed will be determined by the structural requirements of the floor. Screed used for this type of underfloor heating should not include any insulating materials. The heating pipework is positioned giving a minimum screed cover of 30mm (25mm + 5mm deflection for clips).



DISTRIBUTION MANIFOLD



1	Return manifold with shut-off valves	**010A1525P**
2	Flow manifold with lockshield valves and flow meters	**010A2791Q**
2A	Flow meter 0.5÷5lmin	**P78MY001**
2B	M16x1 flow meter nut	**020A00212**
2C	Cap for micrometric balancing valve	**026P15464**
2D	Key for regulating the manifold outlets	**R558Y001**
3	Pair of shut-off ball valves with AAV, filling/drain taps, thermometers, temperature probe inlet and manometer	**010A4685P**
3A	Automatic air vent with O-ring	**026A0019P**
3B	Shut-off valve for automatic air vent	**010A0428P**
3C	Thermometer Ø 40 mm, 0÷120 °C	**R540Y015**
3D	Pre-assembled body with red handle	**010A3862P**
3E	Rubber washer for tail piece	**057G00918**
3F	Drainage ball valve, with hose and cap	**010A2969Q**
3G	Pressure gauge 0-10 bar	**R225Y012**
3H	Reducer for pressure gauge male-female	**050A00042B**
3I	Pre-assembled body with blue handle	**010A3866P**
4	Adjustable bracket	**R588LY001**

INITIAL WARM-UP

To avoid damage to floor coverings, screed cracking or timber shrinkage please follow our initial start up procedure. We strongly recommend for you to consult both your flooring and screed manufacturers' prior to heating the system for specific instructions. If all advice has been adhered to, then the initial heat up procedure can begin.

1	Do not carry out heat commissioning for at least 21 days after the laying of the screed or in accordance with the manufacturer's instructions. For anhydrite screeds at least 7 days must be left before commissioning.
2	If an automatic control system has been specified, thermal actuators will need to replace the manual valve wheel heads (located on return manifold). The electrical installation will need to be complete for this next stage of the start up procedure. For wiring details please refer the electrical diagrams on the system drawing, or view the manufacturer links within the controls section of this document.
3	With all the system balanced and all the actuators open, the boiler can be fired.
4	For a screed type floor system the flow temperature must be limited to 20°- 25°c. On a mixing manifold this can be achieved by setting the thermostatic head to the lowest setting. The underfloor heating can then be gradually brought up to full working temperature over a period of days.
5	The system is to be run at approximately 20-25°C for at least 3 days and then subsequently increase by 5°C every day thereafter until the design temperature is reached. The maximum design temperature shall then be set and maintained for at least 4 days. (For further information see BS EN 1264-4, click here).

SYSTEM: FILLING/DRAINING/FLUSHING

1	Make sure the ball valves are shut off. *Note: Actuators must not be fitted at this stage.*
2	Connect a suitable length of hose securely to each drain cock. (2 per manifold, as indicated on adjacent images).
3	Place one end of a hose into a half-filled bucket of water. The other hose when connected to a water supply can be controlled by the drain cock.
4	Shut off all flow and return valves except for the circuit to be flushed.
5	Opening the drain cock allows water to flow through the circuit. Monitor the hose in the bucket of water until all the air bubbles cease and the water is flowing freely. This will indicate all the air has been removed and that circuit is full of water.
6	Maintain a visual inspection for any leaks whilst filling and venting each circuit.
7	Carry out the same procedure to each circuit until the whole system has been flushed of air and is completely full of water.

R608

ACTUATOR

R473VX121

giacomini.com

Description

230v 2 Wire Electric Actuator

Overview

230v 2 wire electrical actuator, normally closed,for manifolds and valves with thermostatic option.

Cable length: 1.50 m.

LINK - R473 TECHNICAL DOCUMENTATION

LINK - R473 INSTRUCTIONS

SEASONAL ADJUSTMENTS

Underfloor heating can be left on **24 hours a day, all year round** as it is thermostatically controlled by the room temperature. In warm weather it will simply not come on. This is the most efficient way to run a underfloor heating system.

Due to the reduced response time of timber floor applications, timed controls may be utilised. Meaning the system will shutdown for small periods of time. Please consult you flooring supplier for the required timed settings.

During the heating season, the night set-back function (if available) will lower room temperatures overnight. This means that the heating system does not come on at night unless required, while at the same time it is quick to respond in the morning. See manufacturers instructions for more information.

If you need to turn the heating off (for example when servicing) always use the main heating isolation switch.

When re-starting the system for the first time, it may take 24 hours for the system to perform satisfactorily.

Due to the longer response time of underfloor heating systems, it is recommended that small adjustments are made to the thermostat until the most comfortable temperature is achieved. Larger adjustments will result in erratic and more extreme and uncomfortable room temperatures.

The thermostats are designed to shut off the heating in the respective room/zone when the ambient temperature reaches the set temperature. Setting a high temperature on the thermostat will only increase the time that the heating is operational, and will continue to heat the room beyond the comfortable temperature limits.

Leaving the property unoccupied in winter

We recommend that instead of turning the heating system off, use the frost protection setting on your thermostat (if available) to set low level background heating.

Anti – Freeze

Once the system is installed it's recommended that an anti-freeze agent, such as Sentinel X500 or Fernox Alphi-11, be used so in the event of the system being un-used for any length of time the risk of the water and pipe freezing is eliminated.

Please contact your chosen manufacturer for specific applications, usage and recommended concentrations. All manufacturer advice must be strictly adhered to.

GENERAL SYSTEM CHECKS

Giacomini underfloor heating systems have very low maintenance levels but the following items should be inspected during the annual heating system service.

1	The operation of all thermostats should be checked on a regular basis prior to the cooler seasons, for example every year at the end of the summer, or just before the heating system is switched on for winter use. If your thermostat is battery powered check that they have sufficient charge to operate your thermostat. If your thermostat is mains powered, check that the power is still present.
2	It is possible to check the operation of the actuators by visual inspection. When the actuators are fully open, the central pin will protrude from the main body by about 4-5mm, and will take up to 4 ½ minutes to fully open.
3	All connections to the manifold should be checked for evidence of leaking around all mechanical joints.
4	Check that all heating loops are receiving adequate water flow; this can be done by a quick visual check of the flow meters fitted to each return port of the return manifold header. A low flow rate can indicate a flow problem within that heating loop and this should be investigated further. If a problem regarding flow is suspected the heating loop should be purged to ensure there is no air lock or blockage.
5	Should the flow metres be unreadable due to algae build up, these can be cleaned by simply rotating the Perspex viewing section through one complete turn, thus wiping the inside against an internal scraper. It is important not to use any tools to do this as the Perspex may crack and can result in leakage. Cleaning of the system should only be needed as part of the overall heating system cleaning process. Please do not use solvent based products.

FAULT FINDING - FAQ'S

SYSTEM FAULT	POSSIBLE CAUSE	ACTION
No circulation.	• Flow meters are closed. • Thermostats are switched off. No call for heat. • The actuator head fails to rise after three minutes of calling for heat. • Boiler misfired. Boiler not switched on. • Circulation pump is seized. • Isolation valves closed on manifold.	> Adjust the flow rate. > [1] Download manufacturers' instructions and follow set-up procedure. [2] Call an electrician. > [1] Check the actuator is fitted correctly on to the valve body/return port. [2] Replace the actuator. Available from www.brasswaredealer.co.uk > Re-start your boiler. If the fault continues contact a heating engineer. > Replace the pump. > Ensure the isolation valves on the manifold are open.
Return pipe remains cool after hours of running. **Temperature on flow not increasing.**	• Flow meters are closed. • Possible air lock. • Insufficient flow from boiler to manifold.	> Adjust the flow rate. > Follow the procedure for filling and flushing the system. > Increase speed of boiler or manifold pump.
Flow and return pipe hot. Temperature on floor low.	• Flow rate settings too high. Too fast a flow will affect the transfer of heat to the floor surface.	> Set the flow meters to 1.5 - 2 for boiler system and 1 for heat pump settings.
Single zone not heating up.	• Restricted movement of pin valve under actuator. • The actuator head fails to rise after three minutes of calling for heat. • Thermostats are switched off. No call for heat. • Possible air lock. • Wiring issue, possible faulty connection in control unit (dry joint). • Flow meters are closed. • Thermostats operating incorrect actuator.	> Spray with silicon (not WD40) and gently ease the pin movement until free. > [1] Check the actuator is fitted correctly on to the valve body/return port. [2] Replace the actuator. Available from www.brasswaredealer.co.uk > [1] Download manufacturers' instructions and follow set-up procedure. [2] Call an electrician. > Follow the procedure for filling and flushing the system. > Call an electrician to check for continuity issues and loose connections. > Adjust the flow rate. > Contact an electrician to redirect.

FAULT FINDING - FAQ'S

SYSTEM FAULT	POSSIBLE CAUSE	ACTION
Multiple zones not heating up.	• Circulation pump failure.	> [1] Check for air in the pump. [2] Check the pump is receiving a live signal from wiring board. Please refer to manufacturers' instructions for further advice.
	• Pump relay stuck on the wiring board.	> When calling for heat the pump relay should make a clicking sound and switching motion. If not, please call an electrician to check for connection issues.
	• Isolation valves closed on manifold.	> Ensure the isolation valves on the manifold are open.
	• Restricted movement of blending valve pin.	> Spray with silicon (not WD40) and gently ease the pin movement until free.
	• Air ingress in system.	> Follow the procedure for filling and flushing the system.
	• No power to wiring boards.	> Check 5 amp fuse on power.
	• No signal received from boiler.	> Check that the boiler is powered up and the wiring board is receiving and sending out signals. If not, please call an electrician to check for connection issues.
	• Pump valves are closed.	> Check that the thermostat is switching the heat pumps on.
	• Thermostats operating incorrect actuator.	> Contact an electrician to redirect.
Heating zone permanetly on.	• Pin valve under actuator stuck in up posiiton.	> Spray with silicon (not WD40) and gently ease the pin movement until free.
	• Faulty thermostat.	> [1] Download manufacturers' instructions and follow set-up procedure. [2] Check if the thermostat has a live supply and a switched live return, if not call an electrician.
Underfloor heating pump permanetly running.	• Faulty thermostat.	> Check if the thermostat has a live supply and a switched live return when turned up , if not call an electrician.
	• Faulty actuator.	> Replace the actuator. Available from www.brasswaredealer.co.uk
	• Pump relay stuck on the wiring board.	> Contact an electrician to replace the wiring board.
Room thermostat calling for heat, but no power to the pump.	• Electrical connection problems.	> Contact an electrician.

FAULT FINDING - FAQ'S

SYSTEM FAULT	POSSIBLE CAUSE	ACTION
One room warm, other cold.	• Incorrectly mounted actuators. • Insufficient flow for all circuits.	> Ensure that the correct actuators on the correct manifold ports. > Adjust the flow rate.
Noise in system.	• Mounted manifold reverberating. • Air in the system. • High pressure in system. • Manifold plumbed in reverse. • Pump running with no water.	> Further secure the manfold bracket. > Follow the procedure for filling and flushing the system. > Release the pressure from the manifold by draining a little water from one of the filling/flushing valves on the manifold. > Switch off and isolate manifold. Contact plumbing engineer. The manifold must remain switched off until remedial works have been carried out. > Check that valves are open. Check that all air is purged from the system.
Room gets too warm.	• No thermostatic control. • Thermostatic head on manifold faulty. • Room thermostat faulty/broken. • Thermostats operating incorrect actuator.	> [1] Download manufacturers' instructions and follow set-up procedure. [2] Call an electrician. > Replace the thermostatic head. > Replace the thermostat. > Contact an electrician to redirect.

TECHNICAL SUPPORT

ECOFIT ENERGY SYSTEMS

CONTACT DETAILS:

TEL: 01443 291020

EMAIL:
sales@ecofitenergy.com

ADDRESS:

9-11 The Courtyard
Parc Busnes Edwards
Llantrisant
RCT
CF72 8TQ

OFFICE OPENING HOURS:

MON: 8:00 - 17:30
TUES: 8:00 - 17:30
WED: 8:00 - 17:30
THURS: 8:00 - 17:30
FRI: 8:00 - 17:30
SAT: CLOSED
SUN: CLOSED

MANAGING DIRECTOR:
Lauren McDonald

COMMERCIAL MANAGER:
Mike McDonald

SENIOR PROJECT ENGINEER AND DIRECTOR:
Kieran Swift

FOR GIACOMINI SPARE & REPLACEMENT PARTS VISIT:
UK.GIACOMINI.COM/APPROVED-SUPPLIERS

SUPPLIER CONTACT DETAILS

OJ ELECTRONICS
Product Queries
T: 01985 213 003
E: info@ojuk.co.uk

OJ Electronics UK
Crusader House,
Roman Way, Crusader Park,
Warminster Wiltshire
BA12 8SP

HEATMISER
Product Queries
T: 01254 669090
E: support@heatmiser.com

Heatmiser UK Ltd
Units 8&9 Hurstwood Court
Shadsworth Business Park
Mercer Way, Blackburn,
BB1 2QU

DANFOSS
Heating Division
T: 01234 364621
E: danfossrandall@danfoss.com

Danfoss Randall Ltd.
Bedford
Ampthill Road
Bedfordshire, MK42 9ER

WILO UK
Service Division
T: 01283 523000
E: service@wilo.co.uk

Second Avenue, Centrum 100
Burton Upon Trent
Staffordshire, DE14 2WJ

GUARANTEES

The information within this Operations and Maintenance manual is regularly reviewed to avoid errors; however Giacomini U.K Ltd cannot guarantee the correctness of all content. The information displayed in this document is subject to change at any time without notice.

For more information on our terms & conditions please **click here**

WARRANTY CALCULATOR

DATE OF INSTALL	**31/08/2020**
SYSTEM VALID UNTIL:	**31/08/2030**
BRASS VALID UNTIL:	**31/08/2025**
PIPEWORK VALID UNTIL:	**31/08/2070**
ELECTRICAL CONTROLS & PUMPS VALID UNTIL:	**31/08/2022**

GUARANTEES

INSTALLED SYSTEM	10 YEARS
BRASS	5 YEARS
PIPEWORK	50 YEARS
ELECTRICAL CONTROLS & PUMPS	2 YEARS

HYPERLINKS

Listed below are the website references contained within the Controls section of this Operations & Maintenance manual.

CONTROL	LINK
R473VX121, R473X122	http://static.giacomini.com/giacomini.com/catalog/technical_documentation/R473.pdf
R473VX121, R473X122	http://static.giacomini.com/giacomini.com/catalog/instruction_sheets/R473.pdf