The innovative heating concept for new and modernised single-family housing development based on the second generation Integrator Smart CO

- Quality & thrift guarantee
- Total installation's effectiveness
- Exploiting the potential of RES
- Usage comfort
- Compact design

Use of 100% potential of heating devices

- Heating circuit distribution systems
- Photovoltaics' support
- Domestic hot water
- Proper implementation of the water flow
- Integration & buffering

Household members' satisfaction
Effective & economical heating via Integrator Smart CO

- Providing domestic hot water
- Supplying heat to radiators & underfloor heating
- Space optimization of small surface domestic boiler rooms
- Modern, esthetic design

Quality & thrift of the heating system

Ecological sources integration
Makroterm company’s specialisation

In 2012 the solutions for sources integration developed by Makroterm was appreciated by Ministry of the Environment within the realisation Energy Security and Environment strategy - the company became a laureate of Green Technology Accelerator GreenEvo competition in the field of heat sources integration.

LAUREATE OF THE INNOVATION PROGRAM
GREENEVO TECHNOLOGY ACCELERATOR

- Obtaining energy from the heat pump & photovoltaics, 5 class biomass boiler or solar collector
- Ecology ⇒ Implementation & system operation
- Ecology ⇒ Material optimisation of appliances
- Golden Installer 2011 award for elaborating and implementing integrated heating systems exploiting RES.

Heating system’s thrift

- Multisourcing ⇒ Selection of the most economical heat source at the specific operational conditions
- Multi-functionality of Combo Smart CO reducing cost of DHW treatment and circulation pumps operation
- Economic preparation large amounts of domestic hot water
- Reducing losses in the distribution of domestic hot water
- System modularity & minimisation of applied devices diminishing cost & assembly time

Additional economic benefits

- Cost-free electricity from the sun obtained through the use of photovoltaics supporting installation’s operation ⇒ Cheaper heating & DHW supply
- Outside the heating period there’s possible to use current from photovoltaics in order to cool the building, store in the power grid or for other energy needs
- Application of RES such as heat pump, solar collectors or 5 class biomass boiler ⇒ Significant reduction of the installation maintenance costs

Comfort of use the whole system

- High quality of components, remote control system - also outside the home
- Flow-type domestic hot water production providing high quantity of water (Legionella-free) in the short term
Compact multifunctional device to buffer & exchange energy

**Continuous flow supplying DHW**

- reduced energy consumption

- exclusion the use of water heater in order to eliminate Legionella bacteria

- quicker preparation large amounts of DHW

**Taking over the tank DHW function by Combo Smart CO**

- elimination the need of additional domestic hot water tank

- elimination the need of additional piping & DHW tank insulation

- elimination the need of circulation pump to DHW tank

- elimination of energy usage for operation of the DHW circulation

**Compatibility with modern heating appliances RES**

- possible heat collection from RES

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**Combo Smart CO - heat accumulator**

**Efficient buffer tank with DHW function & multisource integration**

- buffering energy

- heat exchange & loss header

- domestic hot water supply

- integration of various heat sources

- maintenance of heating cycles & DHW

- adapted connections to sources

- stainless steel, heat exchangers up to 7 m²

- effective heat exchange

- heat in layers

- continuously flow heated DHW

- insulated housing

- 3 in 1

- optimal dimensions

- 2000 mm

- 650 mm

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**Duo Smart CO - flow distributor**

**Set of pump groups with manifold**

**Organisation & control of the circulations + space optimisation**

- integration of 2 or 3 circulations

- esthetic qualities

- & easy assembling

- space saving: spacing 90 mm

- 621 mm

- 450 mm

- High quality of the circulation pumps

- 2 pump groups Smart CO
dosing correct amount of heat for the heating circuits

- necessary element guaranteeing proper realisation of the flows

- manifold Smart CO: combining power supplies and returns in a single row with the division into circuits

- elimination of the heat losses: insulated housing

- Ultra-compact flow distribution

- integration of power supplies & returns into one manifold

- lower than 28% spacing for piping of circuits

- lower consumption of raw materials needed for accurate separation of circuits as a result - material ecology
MAKROTERM is a Polish family-owned company specialising in manufacturing and implementation of innovative tailored solutions in a heating & cooling branch by exploitation of renewable energy sources. Our company has been founded in the early 90s and actually we are one of the biggest businesses in Poland producing water jacket fireplace inserts, vacuum solar collectors, heat/cool buffers, manifolds, integrators, integrated systems, expansion tanks and more facilities for heating & cooling installations. Our company implements solutions to boost energy efficiency, provide and produce innovative heating and cooling systems for industry, commercial building & detached houses.

T-Smart CO controller - wherever you are...
Operations management of DHW supply installation and heating the entire house using a colour touch panel & Internet

- dedicated Smart CO functions
- antiscalent protection of the installation communication
- weather & weekly regulation
- solar collectors control option

Smart CO - possibilities of energy sources integration
Multisourcing of the system enables diversification of heat sources. There is possibility to integrate sources operating in both open and closed system. At a later date there is possible to add other heat sources. Selection of the most economic source at the specific operational conditions is safe from an energy standpoint.