messana system

Thermal Wellbeing™ comes from above
Messana radiant cooling and heating systems, concealed in the ceiling, provide an environment of unique thermal comfort and health.

An innovative conditioning system based on radiant gypsum panels (Ray Magic) installed on the ceiling. The temperature is more uniform and the air is healthier with Messana Radiant Cooling, without compromising functionality and aesthetics.

Messana radiant system delivers a uniform comfort level throughout your living space, providing comfort and energy where and when needed.
Ray Magic is a pre-fab sandwich assembly with embedded hydronic circuit (patented). The panel assembly consists of a 1½” thick pre-formed EPS board (1) and a gypsum panel (6) bonded together. In between the two is the radiant transfer system consisting of 18 gauge aluminum heat transfer plates (2) with snap channels holding the 8mm PE-Xc radiant tubing (3).

There are two symmetrical radiant serpentine circuits. Each circuit is connected to return and supply lines (4) that run along the length of the panel (the backbone of the fluid distribution). Connections are made at the two opposite terminals of the backbone supply and return lines with a three-way coupling adapter (9). On the surface of the gypsum board are laser engraved piping footprint and screw template (6).

The panel can be connected to other panels through the push-in coupling fitting (7), or terminated with the push-in cap (8), or can be fed directly with 16mm or 1/2” pex pipe. Fittings (7) and (8) are supplied with the panel inserted in a pocket. Once the panels are connected, if necessary to access the fittings, a pre-cut inspection window (10) can be opened by applying some pressure on the edge of the drywall.

Innovative push-in joining technology

3-way sliding joint allowing pipe thermal expansion

1. Funnel shaped collar to facilitate the joining of two panels
2. EDPM triple o-ring to guarantee 100% fluid tight seal
3. Circular stopping wedge
4. Aluminum retaining ring
5. Sliding chamber

The more you pull the more it holds

As the pipe is pushed out by the internal pressure, the stopping wedge transfers the traction force into a downward force on the retaining ring’s locking teeth to engage and hold up to 600 psi (burst pressure).

Header lines push-in connections

Panels connect to the manifold (up to eight panels on the same loop) through a 1/2” (or 16mm) pre-insulated pex pipe. Connections to the panels are made directly with pex pipes into the panel fittings. To run the pex header lines from the manifold, Messana offers the following 1/2” push-in fittings custom made by John Guest, world leader in push-fit plumbing.
CL
4’x8’ Classic (CL) gypsum panel covered with 1/2” gypsum board. Ray Magic CL is the most installed gypsum panel in the world. Ray Magic Gypsum is also available as a 4’x8’ filler panel, Cover (CV), without the active elements, to fill the space between active panels.

SL
2’x8’ Slim (SL) gypsum panel fits in spaces with restricted width, and makes it easier in many situations that can be a challenge (accommodating lights or in between ceiling beams). It comes in a pair on a 4’x8’ panel to be cut in two panels.

NK
2’x8’ Naked (NK) panel comes without any gypsum cover (“naked”). It can be installed between the ceiling joists on a 24” o.c. framing or can be fastened to 24” o.c. additional furring wood strips or resilient channels to improve sound insulation between floors.

All gypsum boards utilized with any Messana radiant gypsum panels, are manufactured by Saint-Gobain.

All Ray Magic gypsum panels (except for Naked) feature AirRenew™ technology and are Low VOC compliant (independently tested and certified by Berkeley Labs). AirRenew™ permanently converts VOCs (volatile organic compounds) into safe, inert compounds.

For more information visit www.airrenew.com

Ray Magic Quad
Acoustical drop ceiling for commercial applications

Modular radiant panel for acoustical drop ceiling (T bar ceiling system) typical of the commercial sector. Designed with two decades of experience and technical know-how on radiant ceiling, built upon the revolutionary Ray Magic technology. Ray Magic Quad is the ideal solution for healthier and more productive environments and any space with demanding acoustic and thermal requirements, such as:

- office spaces
- meeting rooms
- hospitals and clinics
- schools and libraries
- civic centers
- lobbies and waiting areas
- retail spaces
- commercial open spaces

Quad radiant ceiling panels are available with hydronic serpentine (active) or without radiant activation (blank) in three different finishings.

Ray Magic Quad radiant ceiling panels are compatible with the major suspended ceiling grids (Armstrong, USG and Chicago Metallic) and are available with different edge details: trim edge (flat), reveal edge and narrow reveal edge.
Breathing healthy and clean air is also an important part of your Thermal Wellbeing™. This is why Messana has developed a complete range of Air Treatment Units (ATU) specifically designed for radiant cooling to ensure increased Indoor Air Quality (IAQ) and the comfort of the occupants.

Messana neutral temperature dehumidifiers (NTD) with integrated heat recovery ventilation (HRV) allows for the introduction of fresh dehumidified air from outside without wasting energy. Even in critical external conditions, the Messana ATU units are able to maintain the temperature of the supplied air "neutral" with the room (isothermal).

With the new capability of mSense to measure the indoor air quality, based on true CO₂ or VOC readings, the Messana control platform controls and optimizes the heat recovery ventilation (HRV) to save energy and improve quality of life.

Messana pre-insulated manifold specifically designed for radiant cooling

**Legend**
1. 1¼" Supply manifold
2. 1¼" Return manifold
3. 1" Female NPT adapter
4. Automatic air vent valve
5. C/F Temperature gauge
6. Fill/Drain with safety plug
7. Snap-In male adapter
8. Balancing valve body
9. Balancing valve plastic cap
10. Snap-In Manifold adapter to 5/8" Pex-Al-Pex
11. Thermal Actuator
12. Installation bracket
13. Insulation

**Thermal actuators and temperature sensors**

**Thermal actuator 24V (1W) with manifold adapter**
The Messana thermal actuators are based on a PTC resistor-heated elastic element and a return compression spring. When the elastic element is heated by applying the 24V voltage to the PTC resistor, it expands and moves an integrated plunger to open the valve. When the PTC resistor stops being energized, the elastic element shrinks and the return compression spring moves the plunger back and closes the valve on the manifold loop.

**NTC 10k temperature sensors**
To accurately control the temperature of the fluid supplied to the radiant terminals (and/or fan coils), a measurement of the buffer tank, supply and return temperatures is required. Messana provides high quality NTC sensors available in two different types: immersion wells and strap-on/pipe.

**The Messana integrated solution to improve Indoor Air Quality**
The most advanced technology designed for air treatment in radiant systems and more

Messana air units are available in two different models: NTD (neutral temperature dehumidifiers) and ATU (air treatment units, combi unit with NTD and HRV). Each model features different cfm sizes and horizontal (H) or vertical mounting option (V).
mSense
A new generation of room comfort sensors
mSense measures the three fundamental indoor environmental parameters that influence the wellbeing and thermal conditions of occupants: operative temperature, relative humidity (dew-point) and air quality.

In the past, typical room thermostats only provided air temperature as the sole index of thermal conditions in your home.

One unique control platform for combined radiant and air systems
The new Messana control solution for hydronic radiant systems... and more!

mZone
Zoning module (available for 8 or 12 zones)
The mZone module connects up to 12 mSense room sensors. It is installed at the manifold location to activate thermal actuators, recirculating pumps, mixing valves, 2-way and 6-way zone valves and air handlers. It is designed for 2-pipe as well as 4-pipe distribution systems capable of simultaneous heating and cooling demand. It also works with hybrid radiant/forced-air cooling and heating systems.

mBox
HVAC/Radiant automation and control module
The main unit of the home climate control system. Typically installed in the mechanical room, it regulates the home energy flow to deliver optimal Thermal Wellbeing™. It controls energy resources (heat pumps, chillers and boilers) with multi-staging, Domestic Hot Water, Heat Recovery Ventilation based on Indoor Air Quality and Neutral Temperature Dehumidification.

mControls is the latest in-home climate control technology
Designed by Messana with over twenty years of experience, specifically for hydronic systems

Notes
1. Requires additional gateway module CoolMasterNet

Comes pre-programmed ready to install with detailed project-specific wiring diagrams.

Control for fan coils
Gentle control of air handlers as convective integration of the radiant system. Support for major HVAC air handlers (Daikin, Hitachi, LG, Mitsubishi, Samsung) 1.

Connects with home automation systems 1
Integrates with Control4, Lutron, Savant, Crestron and many more. BacNet and Modbus compatibility.

Messana App
Web and mobile full-system control app
The new Messana web and mobile app, gives you full control of the radiant cooling and heating system from anywhere in the world. It features a friendly and intuitive user interface to interact even with the most sophisticated systems at your fingertips. The Messana app fits seamlessly in your life to provide the perfect Thermal Wellbeing™, precisely when and where you want it.