



## Ray Magic® NK 2x8 submittal



US patent #10113678

Job \_\_\_\_\_

Designer \_\_\_\_\_

Contact \_\_\_\_\_

Ray Magic® NK (Naked) is a high performance hydronic radiant panel. It is installed within the ceiling (and walls) and it is covered with 5/8" regular drywall, wood, or other ceiling material, to create unobstructed radiant surfaces.

The panel consists of a 1 1/2" thick EPS board and aluminum heat transfer plates with propriety omega shaped channels. Pressed into these channels are two symmetrical 8 mm [≈ 5/16"] PE-RT radiant tubing circuits laid out in a serpentine pattern. Each tubing circuit is connected in parallel to 16 mm [≈ 1/2"] PE-RT return and supply lines that run along the length of the panel.

Panels are connected together using patented slide-in fitting technology that allows for internal PE-RT piping expansion and contraction.

### Technical specifications<sup>1</sup>

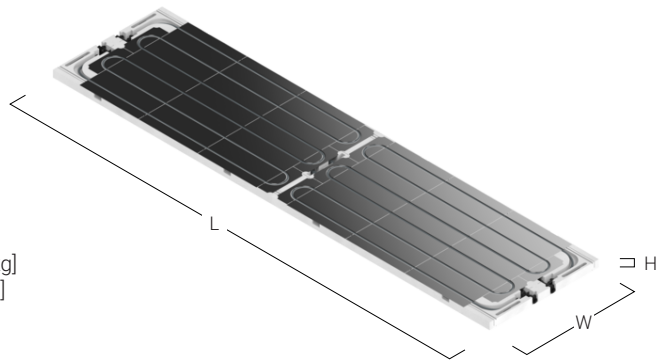
Model	Ray Magic® NK 2x8
Part number	RNKD2838
Features	Quick and easy to install with panel slide-in <b>patented</b> fitting technology
	High heating and cooling performance
	90% net radiant surface
	Installable on 24" o.c. additional channels or between ceiling joist (width from 1 1/2" to 3")
	Environment-friendly and 100% recyclable
	Competitive installed cost compared to other radiant floor panel systems

### Size and weight

nominal size

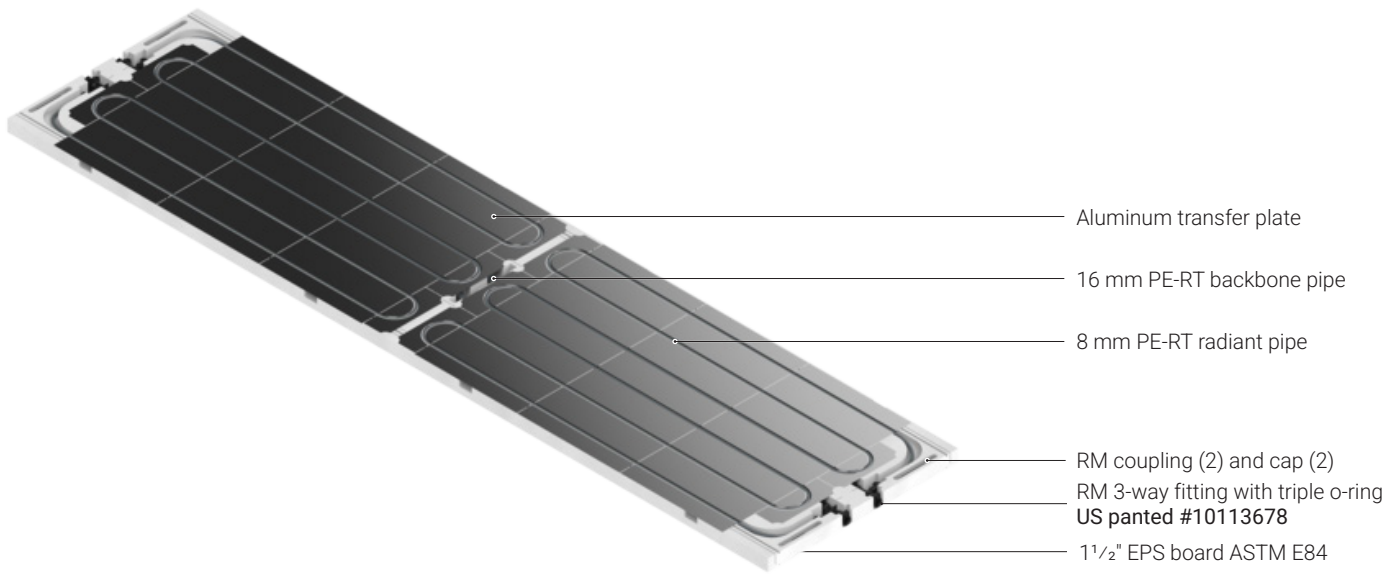
W 2' [610 mm]  
L 8' [2438 mm]  
H 1 1/2" [38 mm]

Weight  
wet (with H<sub>2</sub>O) 10 lbs [4.5 kg]  
dry 8 lbs [3.6 kg]



Finishing <sup>2</sup>	Comes without finishing, can be covered with wood, drywall, or other approved ceiling materials
------------------------	---

Packaging	RM NK 2x8 comes in a 5-panel carton box, with 4 pre-insulated 1/2" PEX straight pipe [8 ft], 10 RM couplings and 10 RM caps. Dimension: 99" x 25 1/4" x 8 1/2" Weight: 58 lbs.
-----------	--



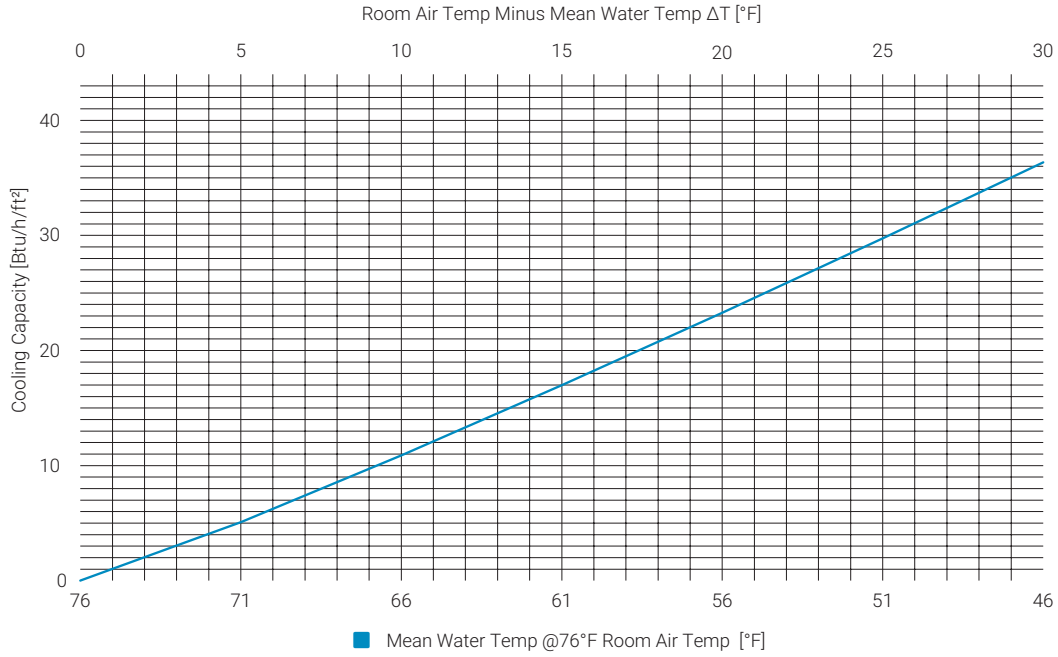
Panel connection	Max 10 panels (2x8) per loop connected in series or parallel
	Panel to panel: use (2) RM coupling (included with each panel)
	Panel capping: use (2) RM cap to cap panel (included with each panel)
	Panel to headers: use the Messana 1/2" PEX-A pre-insulated pipe with the RM F1960 adapter <sup>3</sup>
Heat exchanger	Aluminum plates omega-shaped to wrap around the pipe to increase thermal exchange surface
	Thickness: 0.016 inch [0.4mm], 27 gauge
	Thermal conductivity: 0.18 W/mK when covered with 5/8" gypsum board
	Radiant pipe: 8 mm [ $\approx 5/16$ " ] PE-RT 3-layer pipe with EVOH oxygen barrier
	Serpentine pattern: 3 <sup>3</sup> / <sub>8</sub> " o.c. [100 mm], 3" max cut-out allowed
	Serpentine length: 24 ft per circuit
	one circuits per panels (total 24 ft of piping)
Radiant Area	Gross radiant area: 16 sq.ft. (total panel surface)
	Net radiant area: 14.4 sq.ft. (total active surface)
	Net radiant percentage: 90%
Fluid operating temperature	46 °F to 130 °F
Cooling capacity	21 Btu/h/sq.ft @55 °F (Max 31 Btu/h/sq.ft @46 °F) with 76 °F room temperature (with 5/8" gypsum board)
Heat output	24 Btu/h/sq.ft @100 °F (Max 52 Btu/h/sq.ft @130 °F) with 70 °F room temperature (with 5/8" gypsum board)
Nominal flow rate	0.1 GPM
Pressure drop	0.8 ft of head [0.35 psi] @0.1 gpm
Operating pressure	20 to 40 psi (pressure test at 100 psi)
Water content	0.23 gal [0.875 lt], equivalent to approximately 2 lb [0.9 Kg] of water
Insulation	1 1/2" EPS board ASTM E84 (Class A rated, R-Value = 6.5)

### Notes

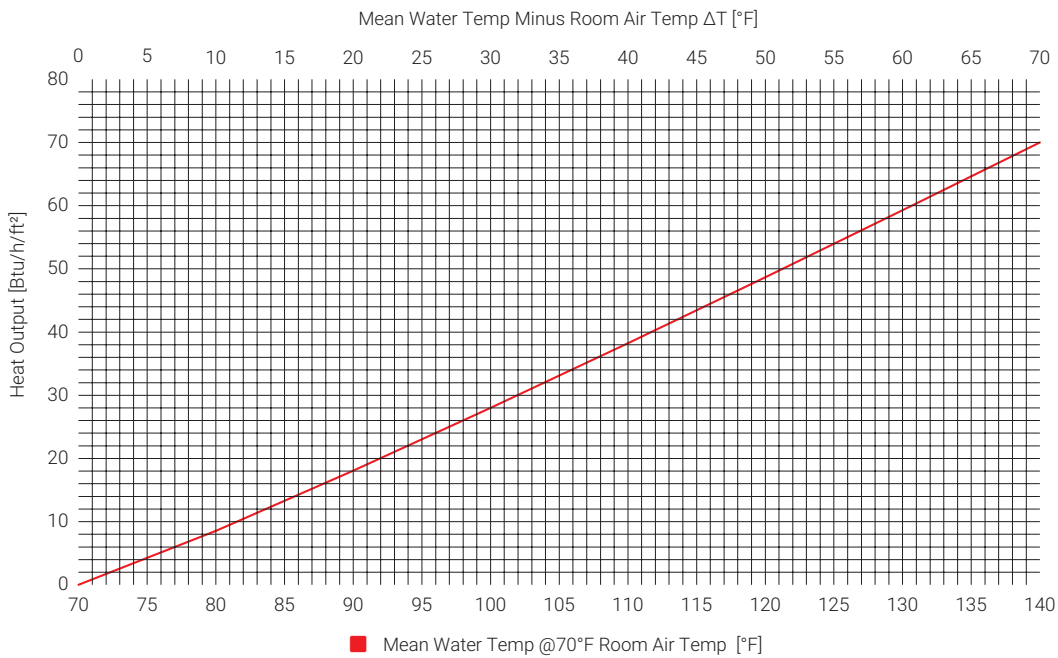
1. Size, weights and technical characteristics may vary without prior notice.
2. Use only ceiling material and installation procedures that comply with all local codes.
3. For third party 1/2" PEX pipe, use the Messana ASTM F1960 connection adapters (Q41/2PPXC0UP).

# Thermal performance

## Cooling capacity



## Heating output



## Notes

These thermal performance charts are based on a correlation between internal testing performed using thermal imaging of the panel surface and the test results, according to the nominatives EN 14240 (cooling) and EN 14037 (heating), performed on the previous version of the Ray Magic panel.