When are cold climate Air>Water Heat pumps coming online in the US?

I live in a marine cold climate in AK and have been looking at a heat pump system that will tie in with my existing hydronic system.

In my research I have found some Chinese models (with little info on them available) and some great models that are sold in Europe.

Specifically the:
Mitsubishi Ecodan
Fujitsu Waterstage

Any idea when any of these will get a UL listing? Are there any existing models (besides Daikin) that work for cold climate and are air>water?

ASKED BY KEVIN LAUSCHER
POSTED TUE, 03/05/2013 - 15:15
TAGS: GREEN PRODUCTS AND MATERIALS

4 Answers

1. The US market for HVAC is largely ducted air (even with ground source heat pumps) due to the higher latent-load air conditioning issues. That makes the hydronic heat pump market in the US miniscule. Daikin has a toe-hold but until they start selling in higher quantities I’m not expecting the gang to join in the way they have in Europe, where air conditioning loads are low and dry, and hydronic heating is the norm.

I’d like to see the Sanyo hydronic CO2 refrigerant (R744) heat pumps show up on these shores too, since the refrigerant charge itself has a very low greenhouse gas footprint, and the efficiency even at domestic hot water output temps is pretty reasonable. They’re available in Europe & Asia, not yet seen in N. America.

ANSWERED BY DANA DORSETT
Posted Tue, 03/05/2013 - 19:28

2. The Japanese made a huge push in this direction for domestic water heating starting in 2003:
http://en.wikipedia.org/wiki/EcoCube

ANSWERED BY KEVIN DICKSON, MSME
Posted Tue, 03/05/2013 - 22:26

3. Regardless of weather an air source heat pump is heating air or water operation at low outside temperatures is limited. The technology used in the Mitsubishi hyper heat mini split (economizer vapor injection AKA EVI) which allows it to produce full output at 4 degrees f and 75% at -13f is not available in anything else here in North America but is widely used in Europe. There are NO EVI compressors that run on 60 Hz so no one can make such a unit. There simply is no market for energy efficiency in North America! We are spoiled by CHEAP energy!

ANSWERED BY JERRY LIEBLER
Posted Wed, 03/06/2013 - 00:14
4. Interesting subject - we all look at what Europe and Asia are doing in the heat pump market but see that we can’t have most of what they are using.... We looked at the Mayekawa CO2 heat pump (both air to water and water to water) for a hotel DHW project here on Martha’s Vineyard. We have sold some Daikin Altherma units but a large part of our AC/heat pump business is mini -splits (air to air). All of the net zero and low energy housing in our area is going towards solar PV and mini-splits - it is very hard to beat the ability to heat, cool, and dehumidify all from one wall unit with great efficiency.

When we compare the ease of mini-split installation versus the Altherma hydronic chilled water/hot water/fan coil model (with minimum 25 gallon system volume, buffer tank, etc., etc.) it is no wonder that mini-splits dominate our sales. I have an intricate chilled water system at home built around geothermal but it makes no sense for someone looking for an economical highly efficient heat pump system. I see the Japanese folks (Daikin, Mitsubishi, Fujitsu, etc.) focusing on the mini-split market in the US - as mentioned above, cheap energy and the furnace/AC companies have made forced air heating systems fairly inexpensive compared to hydronic heating and cooling - thus there is really no market now for air to water heat pumps here.

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(Full disclaimer - Daikin has picked us as Success Story #1 on their new site www.ukin-daikin.com)

ANSWERED BY BRIAN NELSON
Posted Sun, 03/10/2013 - 22:38

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