

AI assisted dry expansion evaporator

The dry expansion evaporators are commonly used in the refrigeration market, due to the ease of regulation and the cheaper costs compared to the flooded evaporators; but dry expansion evaporators have a limit on the performance due to three main factors: the heat transfer coefficients, the maldistribution, and the superheating. The last two depend on each other.

The maldistribution leads to use high suction superheat targets to avoid any liquid to the compressor. In our dry expansion evaporators, with a good distribution system and state-of-the-art Wieland finned tubes, the maldistribution is reduced, but still exists, because it will always be an intrinsic effect of the two-phase fluid dynamics.

Wieland Provides' Artificial Intelligence (AI) helps engineers and technicians even in the dry expansion technology, assisting in the regulation of the heat exchanger and in the analysis of the oil-refrigerant mixture flowing at the outlet of the evaporator.

Merging multiple readings, the AI system will optimize the feeding of the evaporator; with an optimal regulation the 'wasted' surface necessary to achieve the superheating can be minimized, exploiting the full potential of the evaporator.



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