

Title (en)
HEAT PUMP APPARATUS AND AIR CONDITIONER OR WATER HEATER HAVING THE HEAT PUMP APPARATUS MOUNTED THEREON

Title (de)
WÄRMEPUMPENVORRICHTUNG UND KLIMAAANLAGE ODER WASSERERHITZER MIT DER DARAN ANGEBRACHTEN
WÄRMEPUMPENVORRICHTUNG

Title (fr)
APPAREIL DE POMPE À CHALEUR ET CLIMATISEUR OU CHAUFFE-EAU SUR LEQUEL EST MONTÉ L'APPAREIL DE POMPE À CHALEUR

Publication
EP 2157380 B1 20191002 (EN)

Application
EP 08703521 A 20080121

Priority
JP 2008050671 W 20080121

Abstract (en)
[origin: EP2157380A1] A heat pump that can accurately detect a frost formation state on an evaporator without being affected by changes in an indoor environment and changes in a compressor frequency, and an air conditioner or water heater on which the heat pump is mounted are provided. In the heat pump having a refrigerant circuit in which a compressor 3, an indoor heat exchanger 8 (condenser), an expansion valve 5, and an outdoor heat exchanger 6 (evaporator) are sequentially connected, evaporator refrigerant saturation temperature detecting means 10 for detecting an evaporation temperature T_e of the outdoor heat exchanger 6, evaporator sucked air temperature detecting means 11 for detecting an evaporator sucked air temperature T_a of the outdoor heat exchanger 6, compressor frequency detecting means 12 for detecting a compressor frequency f of the compressor 3, and frost formation state detecting means 103 for detecting a frost formation state on the outdoor heat exchanger 6 are provided, and the frost formation state detecting means 103 detects a drop in heat exchange performance caused by a frost formation on the outdoor heat exchanger 6 on the basis of a characteristic amount $T1$, which is a calculation value obtained by dividing a difference between the evaporator sucked air temperature T_a and the evaporation temperature T_e by a compressor frequency f .

IPC 8 full level
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CN113959072A; EP2634512A1; CN112628941A; CN104791944A; CN111279141A; EP3026358A1; CN110388837A; EP4163573A3; US9944256B2; US9797642B2; US10024589B2; WO2012003202A3; WO2018206672A1; US9429352B2; CN104567148A; EP3064867A3; CN111397098A; CN115264760A; US10443872B2; US10465936B2; US10845096B2

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