

Title (en)  
Pressure control valve

Title (de)  
Druckregelventil

Title (fr)  
Vanne de régulation de pression

Publication  
**EP 1666817 A2 20060607 (EN)**

Application  
**EP 05026063 A 20051130**

Priority  
• JP 2004348850 A 20041201  
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Abstract (en)  
A pressure control valve to be integrated into a steam-compression type refrigerating cycle (100) comprising a compressor (101) for circulating CO 2 employed as a refrigerant, a gas cooler (102) for cooling the refrigerant compressed by the compressor, an evaporator (104) into which the refrigerant is designed to be introduced from the gas cooler, and an internal heat exchanger (103) for performing heat exchange between the refrigerant on the outlet side of the evaporator and the refrigerant on the outlet side of the gas cooler; the pressure control valve being constructed to pass the refrigerant to the evaporator after adjusting, depending on the temperature of the refrigerant on the outlet side of the gas cooler, the pressure of the refrigerant introduced therein via the internal heat exchanger from the gas cooler. This pressure control valve comprises: a temperature-sensing cylinder (30) for sensing the temperature of refrigerant on the outlet side of the gas cooler; a temperature-sensing pressure responding element (20) which is provided with a temperature-sensing chamber (25) communicated through a capillary tube (32) with the temperature-sensing cylinder and designed to drive a valve body (15) into a closed or open state in response to fluctuations of inner pressure of the temperature-sensing chamber; and a valve main body (10A) attached integrally to the pressure responding element; wherein the temperature-sensing cylinder and the temperature-sensing chamber are filled with CO 2 at a predetermined density and also with a bulking quantity of an inert gas, thereby enabling to adjust the pressure of refrigerant on the outlet side of the gas cooler in order to secure a maximum coefficient of performance relative to the temperature of refrigerant on the outlet side of the gas cooler.

IPC 8 full level  
**F25B 41/06** (2006.01)

CPC (source: EP KR US)  
**F25B 40/00** (2013.01 - KR); **F25B 41/31** (2021.01 - KR); **F25B 41/335** (2021.01 - EP US); **F25B 40/00** (2013.01 - EP US); **F25B 2309/06** (2013.01 - EP US); **F25B 2309/061** (2013.01 - EP KR US); **F25B 2341/0683** (2013.01 - EP KR US); **F25B 2500/01** (2013.01 - EP KR US)

Citation (applicant)  
JP 2001081157 A 20010327 - NIPPON KAYAKU KK

Cited by  
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