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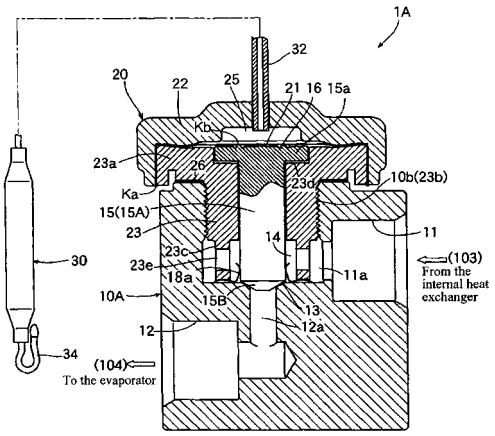
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(54) Pressure control valve

(57) 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.

FIG. 1



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EUROPEAN SEARCH REPORT

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EP 05 02 6063

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	7 December 2006	Ritter, Christoph

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