Title (en)

SELF-ADJUSTING SUPERHEAT VALVE

Title (de)

SELBSTEINSTELLENDES ÜBERHITZUNGSVENTIL

Title (fr)

DETENDEUR A SURCHAUFFE AUTO-REGLABLE

Publication

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Application

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Abstract (en)

[origin: WO9606316A1] The present invention discloses an automatic self-adjusting thermally powered expansion valve (22) for controlling the flow of refrigerant to an evaporator (18) of a refrigeration system (10). The valve (22) includes a generally cylindrical interior valve chamber (84) with an inlet port (90) and an outlet port (92) providing a passage for the flow of refrigerant through the valve (22). The flow of refrigerant through the valve (22) is regulated by valve element (98), which moves longitudinally within chamber (84). The valve element (98) includes one or more grooves (100) along the circumference thereof to provide a passage for the refrigerant. The number and size of grooves (100) which align with inlet port (90) and outlet port (92) determine the flow rate of the refrigerant through valve (22). The longitudinal position of the valve element (98) is controlled by force generators (102, 106, 108) and probes (74, 78). The force generators (102, 106) preferably comprise bellows, while force generator (108) comprises a compression spring. As a result, the position of the valve element (98) depends on the fluid pressure in and the size and configuration of, bellows (102, 106), and the spring constant of compression spring (103). As the temperature at probes (74, 78) increase, so too does the pressure in conduits (76, 80) and bellows (102, 106). Fluid pressure within the evaporator coil (20) is communicated through the valve element (98) by passages (112, 114) so that the movement of valve element (98) is not hindered by a fluid pressure differential in the chamber.

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