

Title (en)  
COOLING DEVICE

Publication  
**EP 0180904 B1 19890830 (DE)**

Application  
**EP 85113773 A 19851029**

Priority  
DE 3440253 A 19841103

Abstract (en)  
[origin: EP0180904A2] 1. A cooling device comprising a multi-cylinder reciprocating compressor (21), a liquefier (25), an expansion unit (27) an evaporator (23), and pipes (22, 24, 26) to contain a cooling liquid which can be vaporized, which pipes connect the reciprocating compressor, the liquefier, the expansion unit and the evaporator to one another, and with a supercooler (28, 38) for the cooling liquid, which supercooler operates with a cooling medium which can be vaporized and is situated in the pipe (26) between the liquefier and the expansion unit, wherein a part of the cooling liquid is used as cooling medium for the supercooler, and wherein the outlet opening (31) of the supercooler is connected by means of an auxiliary suction pipe (32) to the suction side of a portion of the cylinders of the reciprocating compressor, and wherein, moreover, either a part of the cooling liquid which is diverted after the liquefier is led through an additional expansion unit (30), and then through the supercooler which is then constructed as a heat exchanger (28) and from here to the auxiliary suction pipe, or the supercooler is constructed as a gas-liquid-separating vessel (38) connected to the auxiliary suction pipe, in which part of the diverted cooling liquid is vaporized by pressure reduction and consequently the remaining liquid portion is cooled, characterized in that a suction chamber (42), which is connected to the auxiliary suction pipe (32), of at least one cylinder of the reciprocating compressor (21) is separated by a separating wall (41) from the suction chambers (43) of the other cylinders, and a valve device (45) is arranged in the separating wall, and in that this valve device closes when the pressure in the suction chamber (42) connected to the auxiliary suction pipe exceeds that in the other suction chambers (43).

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IPC 8 full level  
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Cited by  
EP1139039A1; DE102005009173A1; EP0837291A3; ES2092424A1; EP0898128A3; EP1498667A3; US7451617B2; US7845190B2; US8113008B2; WO2005008148A1; WO2006087075A1; WO2006015741A1; US8844303B2; US9476614B2; US9494345B2; EP3295029B1

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