

Title (en)  
Refrigerating apparatus and modulator therefor.

Title (de)  
Kühlgerät und Regler dafür.

Title (fr)  
Appareil frigorifique et modulateur pour celui-ci.

Publication  
**EP 0480330 A2 19920415 (EN)**

Application  
**EP 91116961 A 19911004**

Priority  
• JP 9696291 A 19910426  
• JP 26789390 A 19901004

Abstract (en)  
A modulator (100) in a coolant recirculation line (351) for a refrigerating apparatus. The modulator (100) is used for storing an excess amount of the coolant recirculated in the system. The modulator (100) has a space (S) extending vertically, upward and a bottom end connected to the recirculating line (351) at a position downstream of a condenser (400), in such a manner that only a part of the coolant passed through the condenser is introduced into the modulator (100) to compensate for variations in the amount of coolant needed for recirculation in the system. The modulator (100) can be arranged in the middle of the heat exchanger (400), and defines therein a boundary (100a) between the liquid phase and the gas phase, for a separation of the gas from the coolant, so that the portion of the heat exchanger (400) downstream of the modulator (100) can operate as a super cooler (405).

IPC 1-7  
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Cited by  
EP0962345A1; EP0838642A1; DE4245046C5; DE4245046C8; FR2777639A1; DE102005025451A1; DE4245084B4; CN113257446A; FR2735851A1; US5896754A; FR2808869A1; CN105186061A; DE10240305A1; EP0669506A1; DE4402927B4; EP1703233A3; EP2378225A3; CN108885034A; CN1324279C; EP1321729A3; US6038884A; FR2707742A1; US5560214A; EP0822378A1; US5868002A; AU721025B2; EP0974793A3; FR2754886A1; DE4410986B4; FR2709344A1; US5505253A; FR2754887A1; US5974828A; FR2747768A1; US6209349B1; FR2799821A1; FR2770629A1; EP0769666A1; US5709106A; DE4238853A1; DE4238853C2; DE4245046B4; CN115419966A; WO9954672A1; WO9701067A1; FR2820368A1; US6681595B1; WO2006128720A1; US7836725B2; WO0140719A1; WO9411686A1; WO2023115956A1; EP2241849B1; US6622517B1; EP1202007A1; FR2801664A1; EP1893926B1; EP2640585B1

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