CLAIMS

[Claim 1] A heat source unit (10) connected to a utilization-side unit (60, 70) and configured to perform a refrigeration cycle by circulating a refrigerant between the heat source unit (10) and the utilization-side unit (60, 70), the heat source unit (10) comprising:

a compressor (23);

a heat-source-side heat exchanger (24);

a refrigerant control valve (150) of which an opening degree is variable to control a flow of the refrigerant, where if the opening degree is changed, a high pressure of the refrigeration cycle changes; and

a controller (131) configured to change the opening degree of the refrigerant control valve (150) in a stepwise manner, wherein

an amount of change by one step in the opening degree of the refrigerant control valve (150) obtained when the controller (131) controls the refrigerant control valve (150) is a unit change amount,

a physical quantity indicating the high pressure of the refrigeration cycle is a high pressure index,

a value of the high pressure index indicating that the high pressure of the refrigeration cycle is higher than a critical pressure of the refrigerant is a reference value, and

the controller (131) changes the unit change amount employed when the high pressure index is higher than the reference value to a value lower than the unit change amount employed when the high pressure index is lower than the reference value.

[Claim 2] The heat source unit of claim 1, wherein

the refrigerant control valve (150) is a first expansion valve (26) configured to

decompress a refrigerant flowing out of the heat-source-side heat exchanger (24) functioning as a radiator.

[Claim 3] The heat source unit of claim 2, wherein

the unit change amount by which the opening degree of the refrigerant control valve (150) is decreased is a unit decrease amount, and

the controller (131) changes the unit decrease amount employed when the high pressure index is higher than the reference value to a value lower than the unit decrease amount employed when the high pressure index is lower than the reference value.

[Claim 4] The heat source unit of claim 3, wherein

the unit change amount by which the opening degree of the refrigerant control valve (150) is increased is a unit increase amount, and

the controller (131) changes the unit increase amount employed when the high pressure index is higher than the reference value to a value lower than the unit increase amount employed when the high pressure index is lower than the reference value.

[Claim 5] The heat source unit of claim 1, further comprising:

an injection pipe (43) configured to send part of the refrigerant flowing out of the heat-source-side heat exchanger (24) functioning as a radiator to the compressor (23); and

a subcooling heat exchanger (28) configured to exchange heat between the refrigerant flowing out of the heat-source-side heat exchanger (24) functioning as a radiator and the refrigerant flowing through the injection pipe (43), thereby cooling the refrigerant flowing out of the heat-source-side exchanger (24) functioning as a radiator, wherein

the refrigerant control valve (150) is a second expansion valve (46) that is disposed

upstream of the subcooling heat exchanger (28) in the injection pipe (43) and that is configured to reduce the pressure of the refrigerant flowing through the injection pipe (43).

[Claim 6] The heat source unit of claim 1, further comprising:

a first expansion valve (26) configured to decompress a refrigerant flowing out of the heat-source-side heat exchanger (24) functioning as a radiator;

a receiver (25) into which a refrigerant having passed through the first expansion valve (26) flows; and

a venting pipe (41) configured to send a gas refrigerant in the receiver (25) to the compressor (23), wherein

the refrigerant control valve (150) is a third expansion valve (42) provided in the venting pipe (41) and configured to decompress a refrigerant.

[Claim 7] The heat source unit of claim 5 or 6, wherein

the unit change amount by which the opening degree of the refrigerant control valve (150) is increased is a unit increase amount, and

the controller (131) changes the unit increase amount employed when the high pressure index is higher than the reference value to a value lower than the unit increase amount employed when the high pressure index is lower than the reference value.

[Claim 8] The heat source unit of claim 7, wherein

the unit change amount by which the opening degree of the refrigerant control valve (150) is decreased is a unit decrease amount, and

the controller (131) changes the unit decrease amount employed when the high pressure index is higher than the reference value to a value lower than the unit decrease amount

employed when the high pressure index is lower than the reference value.

[Claim 9] The heat source unit of any one of claims 1 to 6, wherein

the heat-source-side heat exchanger (24) is a heat exchanger configured to exchange heat between the refrigerant and outdoor air, and

the high pressure index is a temperature of outdoor air.

[Claim 10] A refrigeration apparatus, comprising:

the heat source unit (10) of any one of claims 1 to 6; and

a utilization-side unit (60, 70) connected to the heat source unit (10) via a pipe.