CLAIMS

1. Method for controlling and adjusting the refrigeration capacities of a refrigeration system equipped with a double suction compressor, the system comprising compartments to be refrigerated and comprising at least two evaporators (20) positioned in the compartments to be refrigerated (60,70), the double suction compressor (10) being controllable to alternate its compression capacity, the method comprising the steps of:

(i) continuously measuring at least a temperature from a temperature sensor (SET,SCT) associated with at least one of the evaporators (20);

(ii) acting in the compression capacity of the compressor (10), based on measurement of step (i), the acting in the compressor's capacity (CAP_{COMP}) of the compressor (10) being performed thorough the intermittent connection and disconnection of its operation,

the method being characterized in that under operation, the refrigeration system alternates the operation of each one of the suctions of the compressor's (10) double suction,

the interchange of operation of the suctions of the compressor (10) is performed through modulation with a duty cycle ($D1_{DS}$, $D2_{DS}$), the modulation being performed in a complementary manner between each one of the suctions (SC_1,SC_2).

2. Method according to claim 1, characterized in that the modulation comprises variable duty cycles ($D1_{DS}$, $D2_{DS}$) between each one of the suctions (SC_1,SC_2).

3. Method according to claim 1, characterized in that the modulation comprises a duty cycle ($D1_{DS}$, $D2_{DS}$) with a fixed duty cycle value between each one of the suctions (SC_1,SC_2).

4. Method according to claim 3, characterized in that it comprises a step of measuring one first temperature (T1) from a single temperature sensor (SET), the temperature sensor (SET) being positioned in a compartment to be refrigerated (60,70) and which, in turn, is related to one first suction line that operates in a first duty cycle ($D1_{DS}$).

5. Method according to claim 4, characterized in that the compressor (10) is connected when the first temperature (T1) is above a reference value.

6. Method according to claim 3, characterized in that the step of measuring a first temperature (T1) and a second temperature (T2) from temperature sensors (SET,SCT), the temperature sensors (SET,SCT) being positioned in different compartments to be refrigerated (60,70), the compressor (10) being disconnected when both the first and second temperatures (T1,T2) achieve temperature reference values.

7. Method according to claim 3, characterized in that CPF that the duty cycle ($D1_{DS}$, $D2_{DS}$) is adjusted to such a value that the first and second temperatures (T1,T2) achieve their respective reference values at the same moment.

8. Method according to claim 3, characterized in that the step of measuring a first temperature (T1) and a second temperature (T2) from temperature sensors (SET,SCT), the temperature sensors (SET,SCT) being positioned in different compartments to be refrigerated (60,70), the compressor (10) will have its capacity increased if the first or second temperatures (T1,T2) achieve temperature reference values at different moments.

9. Method according to claim 7, characterized in that the interchange of operation of the compressor's (10) suctions is performed though the modulation with a duty cycle ($D1_{DS}$, $D2_{DS}$), the modulation being performed in a complementary manner between each one of the suctions (SC_1,SC_2), and being chosen among the three fixed values of duty cycle from the combination of values obtained for the first temperature (T1) and the second temperature (T2).

10. Method according to claim 1, characterized in that the operation in the compressor's (10) capacity is performed through the phased variation in its operation state.

11. Method according to claim 9, characterized in that the interchange of operation of the compressor's (10) suctions is performed through modulation with a duty cycle ($D1_{DS}$, $D2_{DS}$), the modulation being performed in

a complementary manner between each one of the suctions (SC_1,SC_2).

12. Method according to claims 10, characterized in that the modulation comprises variable duty cycles ($D1_{DS}$, $D2_{DS}$) between each one of the suctions (SC_1,SC_2).

13. Method according to claim 12, characterized in that the modulation comprises duty cycle ($D1_{DS}$, $D2_{DS}$) with a fixed duty cycle value between each one of the suctions (SC_1,SC_2).

14. Method according to claim 13, characterized in that a refrigeration capacity of a first refrigerated compartment (60), related to the capacity of a first evaporator ($CAP_{EV}1$) related to a first suction line (SC_1), and that the refrigeration capacity of a second refrigerated compartment (70), related to the capacity of a second evaporator ($CAP_{EV}2$) related to a second suction line (SC_2), result from the multiplication of the capacity (CAP_{COMP}) of the compressor (10) and the respective suction duty cycles ($D1_{DS}$,$D2_{DS}$).

15. Method according to claim 14, characterized in that a first suction line (SC_1) is activated from the measurement of the first temperature (T1) and that the second suction line (SC_2) is activated from the second temperature (T2).

16. Method according to claim 14, characterized in that the value of the duty cycles ($D1_{DS}$, $D2_{DS}$) and the capacity values of the compressor (CAP_{COMP1},CAP_{COMP2}) are defined based on the reading of two temperature sensors (SET,SCT), the first temperature sensor (SET,SCT) being related to the first temperature (T1) of the first refrigerated compartment (60), which in turn is related to the first suction line (SC_1) which operates in a first duty cycle ($D1_{DS}$) and that the second temperature sensor (SET,SCT) is related to the second temperature (T2) of a second refrigerated compartment (70), which in turn is related to a second suction line that operates in a second duty cycle ($D2_{DS}$).

17. Method according to claim 16, characterized in that a demand for capacity of the first refrigerated compartment (60), related to the capacity of a first evaporator ($CAP_{EV}1$), is obtained through the reading of the first temperature (T1) and that a demand for capacity of the second refriger-

ated compartment (70), related to the capacity of the second evaporator ($CAP_{EV}2$), is obtained through the reading of the second temperature (T2).

18. Method according to claim 14, characterized in that the value of the duty cycles ($D1_{DS}$, $D2_{DS}$) and the values of capacity of the compressor (CAP_{COMP1},CAP_{COMP2}) are defined based on the reading of two or more temperature sensors (SET,SCT) and based on the reading of a load sensor (STQ) of the compressor (10), where at least one first sensor is related to the first temperature (T1) of the first refrigerated compartment (60), which, in turn, is related to one first suction line (SC_1) that operates in a first duty cycle ($D1_{DS}$) and that the second temperature sensor (SET, SCT) is related to the second temperature (T2) of a second refrigerated compartment (70), which in turn is related to a second suction line that operates in a second duty cycle ($D2_{DS}$).

19. Method according to claim 14, characterized in that the values of the duty cycles ($D1_{DS}$, $D2_{DS}$) are defined based on the reading of a first temperature (T1) and based on the reading of a load sensor (STQ) of the compressor (10), the second estimated temperature ($T2_E$) being calculated from the value of the reading of a load sensor (STQ).

20. System for controlling a double suction compressor (10) for application in refrigeration systems, the refrigeration system comprising at least two evaporators (20), positioned in the compartments to be refrigerated (60,70),

the double suction (SC_1,SC_2) compressor (10) being controllable to alternate its compression capacity, the compressor being controlled by an electronic control (90),

the system comprising:

at least two evaporators (20);

the electronic control being configured to act in the compression capacity of the compressor (10), from the measurement of at least a temperature sensor (SET,SCT) associated with at least one of the evaporators (20), the system being characterized in that:

the action in the compressor's capacity (CAP_{COMP}) is performed

through the connection and intermittent disconnection of its operation,

the electronic control (90) controls an interchange of operation of each one of the suctions of the compressor's (10) double suction, and

the interchange of operation of the compressor's (10) suctions is performed through modulation with a duty cycle (D1DS, D2DS), the modulation being performed in complementary manner between each one of the suctions (SC1,SC2).

21. System according to claim 20, characterized in that the electronic control (90) controls the modulation between each one of the suctions (SC_1,SC_2) in variable duty cycles ($D1_{DS}$, $D2_{DS}$).

22. System according to claim 21, characterized in that the modulation comprises duty cycle ($D1_{DS}$, $D2_{DS}$) with a fixed duty cycle value between each one of the suctions (SC_1,SC_2).

23. System according to claim 22, characterized in that it comprises a single temperature sensor (SET,SCT) to measure a first temperature (T1), the temperature sensor (SET,SCT) being positioned in a compartment to be refrigerated (60,70) and which, in turn, is related to a first suction line (SC_1) which operates in the first duty cycle ($D1_{DS}$).

24. System according to claim 23, characterized in that the electronic control (90) is configured to turn on the compressor (10) when the first temperature (T1) is above a reference value.

25. System according to claim 24, characterized in that it comprises temperature sensors (SET,SCT) positioned in different compartments to be refrigerated (60,70), the electronic control (90) being configured to turn off the compressor (10) when both the first and second temperatures (T1,T2) achieve temperature reference values.

26. System according to claim 24, characterized in that it comprises temperature sensors (SET,SCT) positioned in different compartments to be refrigerated (60,70), the electronic control (90) being configured to increase the compressor's (10) capacity if the first or the second temperatures (T1,T2) achieve temperature reference values at different moments.

27. System according to claim 26, characterized in that the elec-

tronic control (90) is configured to control the interchange of operation of the compressor's (10) suctions (SC_1,SC_2) through modulation with a duty cycle ($D1_{DS}$, $D2_{DS}$), the modulation being performed in a complementary manner between each one of the suctions (SC_1,SC_2), and being chosen among the three fixed values of duty cycle from the combination of values obtained from the first temperature (T1) and from the second temperature (T2).

28. System according to claim 20, characterized in that the compressor (10) is configured to have its capacity adjustable through the phased variation in its operation state.

29. System according to claim 28, characterized in that the compressor (10) is a variable capacity one.

30. System according to claim 29, characterized in that the electronic control is configured to control the interchange of operation of the compressor's (10) suctions (SC_1,SC_2), performed through modulation with a duty cycle ($D1_{DS}$, $D2_{DS}$), the modulation being performed in a complementary manner between each one of the suctions (SC_1,SC_2).

31. System according to claim 30, characterized in that the modulation comprises variable duty cycles ($D1_{DS}$, $D2_{DS}$) between each one of the suctions (SC_1,SC_2).

32. System according to claim 30, characterized in that the modulation comprises variable duty cycles ($D1_{DS}$, $D2_{DS}$) between each one of the suctions (SC_1,SC_2).

33. System according to claim 32, characterized in that a refrigeration capacity of a first refrigerated compartment (60), related to the capacity of a first evaporator ($CAP_{EV}1$) related to a first suction line (SC_1), and that the refrigeration capacity of a second refrigerated compartment (70), related to the capacity of a second evaporator($CAP_{EV}2$) related to a second suction line (SC_2), result from the multiplication of the compressor's (10) capacity (CAP_{COMP}) and from the respective suction duty cycles ($D1_{DS}$,$D2_{DS}$).

34. System according to claim 33, characterized in that the electronic control is configured so that a first suction line (SC_1) is activated from the measure of the first temperature (T1) and that the second suction line

(SC_2) is activated from the second temperature (T2).

35. System according to claim 34, characterized in that the value of the duty cycles ($D1_{DS}$, $D2_{DS}$) and the capacity values of the compressor (CAP_{COMP1},CAP_{COMP2}) are defined based on the reading of two temperature sensors (SET,SCT), the first temperature sensor (SET,SCT) being related to the first temperature (T1) of the first refrigerated compartment (60), which in turn is related to the first suction line (SC_1) which operates in a first duty cycle ($D1_{DS}$) and that the second temperature sensor (SET,SCT) is related to the second temperature (T2) of a second refrigerated compartment (70), which in turn is related to a second suction line (SC_2) which operates in a second duty cycle ($D2_{DS}$).

36. System according to claim 35, characterized in that a demand for capacity of the first refrigerated compartment (60), related to the capacity of a first evaporator ($CAP_{EV}1$), is obtained through the reading of the first temperature (T1) and that a demand for capacity of the second refrigerated compartment (70), related to the capacity of the second evaporator ($CAP_{EV}2$), is obtained through the reading of the second temperature (T2).

37. System according to claim 36, characterized in that the value of the duty cycles ($D1_{DS}$, $D2_{DS}$) and the values of the compressor's capacity (CAP_{COMP1},CAP_{COMP2}) are defined based on the reading of two or more temperature sensors (SET,SCT) and based on the reading of a load sensor (STQ) of the compressor (10), where at least a first sensor is related to the first temperature (T1) of the first refrigerated compartment (60), which in turn is related to a first suction line (SC_1) which operates in a first duty cycle ($D1_{DS}$) and in that the second temperature sensor (SET, SCT) is related to the second temperature (T2) of a second refrigerated compartment (70), which in turn is related to a second suction line that operates in a second duty cycle ($D2_{DS}$).

38. System according to claim 37, characterized in that the values of the duty cycles ($D1_{DS}$, $D2_{DS}$) are defined based on the reading of a first temperature (T1) and based on the reading of a load sensor (STQ) of the compressor (10), the second estimated temperature ($T2_E$) being calculated

from the value of the reading of a load sensor (STQ).

39. System for controlling a double suction compressor (10) for application in refrigeration systems, the refrigeration system being characterized in that it comprises:

- a compressor (10) with at least two suctions (SC_1,SC_2),
- at least two evaporators (20), positioned in the compartments to be refrigerated (60,70),
- at least one temperature sensor (SET,SCT) located in one of the compartments to be refrigerated (60,70), having capillary tubes connected to each one of the evaporators, and at least a valve for controlling the flow of one of the suctions (SC_1,SC_2),
- an electronic control (90) operatively connected to the compressor (10) and to the valve for suction control, the electronic control being configured to detect a load of the compressor (10) and control an opening or closing state of the suction valve, the compressor having its on or off operation state determined from the observation of a temperature (T1,T2) in at least one of the compartments to be refrigerated (60,70), the electronic controller (90) keeping the suction valve alternatively opened and closed and modulating in a complementary manner the operation of each one of the suctions (SC_1, SC_2), in a time relation calculated from the measurement of at least one temperature sensor (SET,SCT) associated with at least one of the evaporators (20).

40. Refrigerator that comprises a refrigeration circuit that includes a compressor (10) comprising at least two suctions (SC_1,SC_2),

the refrigerator comprising compartments to be refrigerated and comprising at least two evaporators (20) positioned in the compartments to be refrigerated (60,70);

an electronic control operatively connected to the compressor and to the valve for suction control;

at least one valve for flow control to divide the fluid connection of one of the suctions to one of the evaporators (20);

the refrigerator being characterized in that

the electronic control (90) is configured to measure at least a variable of behavior of the refrigeration circuit to selectively control the suction valve and alternate an operation state of one of the evaporators (20) in a complementary manner and in a proportion of interchange established by the relation of measures of at least one variable of behavior of the refrigeration circuit.

41. Refrigerator according to claim 40, characterized in that the electronic control (90) is associated with at least one temperature sensor (SET,SCT) located in at least one of the compartments to be refrigerated (60,70), the electronic control (90) being configured so that the compressor's (10) operation is disconnected when the temperature sensor (SET,SCT) achieves a temperature reference value previously established.

CLAIMS

1. Method for controlling and adjusting the refrigeration capacities of a refrigeration system equipped with a double suction compressor, the system comprising compartments to be refrigerated and comprising at least two evaporators (20) positioned in the compartments to be refrigerated (60,70), the double suction compressor (10) being controllable to alternate its compression capacity, the method being comprising the steps of:

(i) continuously measuring at least a temperature coming from a temperature sensor (SET,SCT) associated with at least one of the evaporators (20);

(ii) acting in the compression capacity of the compressor (10), based on the measurement of step (i), the acting in the compressor's capacity (CAP_{COMP}) of the compressor (10) being performed through the intermittent connection and disconnection of its operation,

the method being characterized in that under operation, the refrigeration system alternates the operation of each one of the suctions of the compressor´s (10) double suction,

the interchange of operation of the suctions of the compressor (10) is performed through modulation with a duty cycle ($D1_{DS}$, $D2_{DS}$), the modulation being performed in a complementary manner between each one of the suctions (SC_1,SC_2) such that:

a refrigeration capacity of a first refrigerated compartment (60), related to the capacity of a first evaporator ($CAP_{EV}1$) related to a first suction line (SC_1), and that the refrigeration capacity of a second refrigerated compartment (70), related to the capacity of a second evaporator ($CAP_{EV}2$) related to a second suction line (SC_2), result from the multiplication of the compressor's (10) capacity (CAP_{COMP}) and from the respective suction duty cycles ($D1_{DS}$,$D2_{DS}$).

2. Method according to claim 1, characterized in that the modulation comprises variable duty cycles ($D1_{DS}$, $D2_{DS}$) between each one of the suctions (SC_1,SC_2).

3. Method according to claim 1, characterized in that the modulation comprises a duty cycle ($D1_{DS}$, $D2_{DS}$) with a fixed duty cycle value be-

tween each one of the suctions (SC_1,SC_2).

4. Method according to claim 3, characterized in that it comprises a step of measuring one first temperature (T1) from a single temperature sensor (SET), the temperature sensor (SET) being positioned in a compartment to be refrigerated (60,70) and which, in turn, is related to one first suction line that operates in a first duty cycle ($D1_{DS}$).

5. Method according to claim 4, characterized in that the compressor (10) is connected when the first temperature (T1) is above a reference value.

6. Method according to claim 3, characterized in that the step of measuring a first temperature (T1) and a second temperature (T2) from temperature sensors (SET,SCT), the temperature sensors (SET,SCT) being positioned in different compartments to be refrigerated (60,70), the compressor (10) being disconnected when both the first and second temperatures (T1,T2) achieve temperature reference values.

7. Method according to claim 3, characterized in that the duty cycle ($D1_{DS}$, $D2_{DS}$) is adjusted to such a value that the first and second temperatures (T1,T2) achieve their respective reference values at the same moment.

8. Method according to claim 3, characterized in that the step of measuring a first temperature (T1) and a second temperature (T2) from temperature sensors (SET,SCT), the temperature sensors (SET,SCT) being positioned in different compartments to be refrigerated (60,70), the compressor (10) will have its capacity increased if the first or second temperatures (T1,T2) achieve temperature reference values at different moments.

9. Method according to claim 7, characterized in that the interchange of operation of the compressor's (10) suctions is performed though the modulation with a duty cycle ($D1_{DS}$, $D2_{DS}$), the modulation being performed in a complementary manner between each one of the suctions (SC_1,SC_2), and being chosen among the three fixed values of duty cycle from the combination of values obtained for the first temperature (T1) and the second temperature (T2).

10. Method according to claim 1, characterized in that the opera-

tion in the compressor's (10) capacity is performed through the phased variation in its operation state.

11. Method according to claim 9, characterized in that the interchange of operation of the compressor's (10) suctions is performed through modulation with a duty cycle ($D1_{DS}$, $D2_{DS}$), the modulation being performed in a complementary manner between each one of the suctions (SC_1,SC_2).

12. Method according to claims 10, characterized in that the modulation comprises variable duty cycles ($D1_{DS}$, $D2_{DS}$) between each one of the suctions (SC_1,SC_2).

13. Method according to claim 12, characterized in that the modulation comprises duty cycle ($D1_{DS}$, $D2_{DS}$) with a fixed duty cycle value between each one of the suctions (SC_1,SC_2).

14. Method according to claim 1, characterized in that a first suction line (SC_1) is activated from the measurement of the first temperature (T1) and that the second suction line (SC_2) is activated from the second temperature (T2).

15. Method according to claim 1, characterized in that the value of the duty cycles ($D1_{DS}$, $D2_{DS}$) and the capacity values of the compressor (CAP_{COMP1},CAP_{COMP2}) are defined based on the reading of two temperature sensors (SET,SCT), the first temperature sensor (SET,SCT) being related to the first temperature (T1) of the first refrigerated compartment (60), which in turn is related to the first suction line (SC_1) which operates in a first duty cycle ($D1_{DS}$) and that the second temperature sensor (SET,SCT) is related to the second temperature (T2) of a second refrigerated compartment (70), which in turn is related to a second suction line that operates in a second duty cycle ($D2_{DS}$).

16. Method according to claim 15, characterized in that a demand for capacity of the first refrigerated compartment (60), related to the capacity of a first evaporator ($CAP_{EV}1$), is obtained through the reading of the first temperature (T1) and that a demand for capacity of the second refrigerated compartment (70), related to the capacity of the second evaporator ($CAP_{EV}2$), is obtained through the reading of the second temperature (T2).

17. Method according to claim 1, characterized in that the value

of the duty cycles ($D1_{DS}$, $D2_{DS}$) and the values of capacity of the compressor (CAP_{COMP1},CAP_{COMP2}) are defined based on the reading of two or more temperature sensors (SET,SCT) and based on the reading of a load sensor (STQ) of the compressor (10), where at least one first sensor is related to the first temperature (T1) of the first refrigerated compartment (60), which, in turn, is related to one first suction line (SC_1) that operates in a first duty cycle ($D1_{DS}$) and that the second temperature sensor (SET, SCT) is related to the second temperature (T2) of a second refrigerated compartment (70), which in turn is related to a second suction line that operates in a second duty cycle ($D2_{DS}$).

18. Method according to claim 1, characterized in that the values of the duty cycles ($D1_{DS}$, $D2_{DS}$) are defined based on the reading of a first temperature (T1) and based on the reading of a load sensor (STQ) of the compressor (10), the second estimated temperature ($T2_E$) being calculated from the value of the reading of a load sensor (STQ).

19. System for controlling a double suction compressor (10) for application in refrigeration systems, the refrigeration system comprising at least two evaporators (20), positioned in the compartments to be refrigerated (60,70),

the double suction (SC_1,SC_2) compressor (10) being controllable to alternate its compression capacity, the compressor being controlled by an electronic control (90),

the system comprising:

at least two evaporators (20);

the electronic control being configured to act in the compression capacity of the compressor (10), from the measurement of at least a temperature sensor (SET,SCT) associated with at least one of the evaporators (20), the system being characterized in that:

the action in the compressor's capacity (CAP_{COMP}) is performed through the connection and intermittent disconnection of its operation,

the electronic control (90) controls an interchange of operation of each one of the suctions of the compressor's (10) double suction, and

the interchange of operation of the compressor's (10) suctions is

performed through modulation with a duty cycle ($D1_{DS}$, $D2_{DS}$), the modulation being performed in complementary manner between each one of the suctions (SC_1,SC_2) such that:

a refrigeration capacity of a first refrigerated compartment (60), related to the capacity of a first evaporator ($CAP_{EV}1$) related to a first suction line (SC_1), and that the refrigeration capacity of a second refrigerated compartment (70), related to the capacity of a second evaporator ($CAP_{EV}2$) related to a second suction line (SC_2), result from the multiplication of the compressor's (10) capacity (CAP_{COMP}) and from the respective suction duty cycles ($D1_{DS}$,$D2_{DS}$).

20. System according to claim 19, characterized in that the electronic control (90) controls the modulation between each one of the suctions (SC_1,SC_2) in variable duty cycles ($D1_{DS}$, $D2_{DS}$).

21. System according to claim 20, characterized in that the modulation comprises duty cycle ($D1_{DS}$, $D2_{DS}$) with a fixed duty cycle value between each one of the suctions (SC_1,SC_2).

22. System according to claim 21, characterized in that it comprises a single temperature sensor (SET,SCT) to measure a first temperature (T1), the temperature sensor (SET,SCT) being positioned in a compartment to be refrigerated (60,70) and which, in turn, is related to a first suction line (SC_1) which operates in the first duty cycle ($D1_{DS}$).

23. System according to claim 22, characterized in that the electronic control (90) is configured to turn on the compressor (10) when the first temperature (T1) is above a reference value.

24. System according to claim 23, characterized in that it comprises temperature sensors (SET,SCT) positioned in different compartments to be refrigerated (60,70), the electronic control (90) being configured to turn off the compressor (10) when both the first and second temperatures (T1,T2) achieve temperature reference values.

25. System according to claim 23, characterized in that it comprises temperature sensors (SET,SCT) positioned in different compartments to be refrigerated (60,70), the electronic control (90) being configured to increase the compressor's (10) capacity if the first or the second temperatures

(T1,T2) achieve temperature reference values at different moments.

26. System according to claim 25, characterized in that the electronic control (90) is configured to control the interchange of operation of the compressor's (10) suctions (SC_1,SC_2) through modulation with a duty cycle ($D1_{DS}$, $D2_{DS}$), the modulation being performed in a complementary manner between each one of the suctions (SC_1,SC_2), and being chosen among the three fixed values of duty cycle from the combination of values obtained from the first temperature (T1) and from the second temperature (T2).

27. System according to claim 19, characterized in that the compressor (10) is configured to have its capacity adjustable through the phased variation in its operation state.

28. System according to claim 27, characterized in that the compressor (10) is a variable capacity one.

29. System according to claim 28, characterized in that the electronic control is configured to control the interchange of operation of the compressor's (10) suctions (SC_1,SC_2), performed through modulation with a duty cycle ($D1_{DS}$, $D2_{DS}$), the modulation being performed in a complementary manner between each one of the suctions (SC_1,SC_2).

30. System according to claim 29, characterized in that the modulation comprises variable duty cycles ($D1_{DS}$, $D2_{DS}$) between each one of the suctions (SC_1,SC_2).

31. System according to claim 29, characterized in that the modulation comprises variable duty cycles ($D1_{DS}$, $D2_{DS}$) between each one of the suctions (SC_1,SC_2).

32. System according to claim 19, characterized in that the electronic control is configured so that a first suction line (SC_1) is activated from the measure of the first temperature (T1) and that the second suction line (SC_2) is activated from the second temperature (T2).

33. System according to claim 32, characterized in that the value of the duty cycles ($D1_{DS}$, $D2_{DS}$) and the capacity values of the compressor (CAP_{COMP1},CAP_{COMP2}) are defined based on the reading of two temperature sensors (SET,SCT), the first temperature sensor (SET,SCT) being related to the first temperature (T1) of the first refrigerated compartment (60), which in

turn is related to the first suction line (SC_1) which operates in a first duty cycle ($D1_{DS}$) and that the second temperature sensor (SET,SCT) is related to the second temperature (T2) of a second refrigerated compartment (70), which in turn is related to a second suction line (SC_2) which operates in a second duty cycle ($D2_{DS}$).

34. System according to claim 33, characterized in that a demand for capacity of the first refrigerated compartment (60), related to the capacity of a first evaporator ($CAP_{EV}1$), is obtained through the reading of the first temperature (T1) and that a demand for capacity of the second refrigerated compartment (70), related to the capacity of the second evaporator ($CAP_{EV}2$), is obtained through the reading of the second temperature (T2).

35. System according to claim 34, characterized in that the value of the duty cycles ($D1_{DS}$, $D2_{DS}$) and the values of the compressor's capacity (CAP_{COMP1},CAP_{COMP2}) are defined based on the reading of two or more temperature sensors (SET,SCT) and based on the reading of a load sensor (STQ) of the compressor (10), where at least a first sensor is related to the first temperature (T1) of the first refrigerated compartment (60), which in turn is related to a first suction line (SC_1) which operates in a first duty cycle ($D1_{DS}$) and in that the second temperature sensor (SET, SCT) is related to the second temperature (T2) of a second refrigerated compartment (70), which in turn is related to a second suction line that operates in a second duty cycle ($D2_{DS}$).

36. System according to claim 35, characterized in that the values of the duty cycles ($D1_{DS}$, $D2_{DS}$) are defined based on the reading of a first temperature (T1) and based on the reading of a load sensor (STQ) of the compressor (10), the second estimated temperature ($T2_E$) being calculated from the value of the reading of a load sensor (STQ).

37. System for controlling a double suction compressor (10) for application in refrigeration systems, the refrigeration system being characterized in that it comprises:

- a compressor (10) with at least two suctions (SC_1,SC_2),
- at least two evaporators (20), positioned in the compartments to be refrigerated (60,70),

- at least one temperature sensor (SET,SCT) located in one of the compartments to be refrigerated (60,70), having capillary tubes connected to each one of the evaporators, and at least a valve for controlling the flow of one of the suctions (SC_1,SC_2),

- an electronic control (90) operatively connected to the compressor (10) and to the valve for suction control, the electronic control being configured to detect a load of the compressor (10) and control an opening or closing state of the suction valve, the compressor having its on or off operation state determined from the observation of a temperature (T1,T2) in at least one of the compartments to be refrigerated (60,70), the electronic controller (90) keeping the suction valve alternatively opened and closed and modulating in a complementary manner the operation of each one of the suctions (SC_1,SC_2), in a time relation calculated from the measurement of at least one temperature sensor (SET,SCT) associated with at least one of the evaporators (20),

a refrigeration capacity of a first refrigerated compartment (60), related to the capacity of a first evaporator ($CAP_{EV}1$) related to a first suction line (SC_1), and that the refrigeration capacity of a second refrigerated compartment (70), related to the capacity of a second evaporator ($CAP_{EV}2$) related to a second suction line (SC_2), result from the multiplication of the compressor's (10) capacity (CAP_{COMP}) and from the respective suction duty cycles ($D1_{DS}$,$D2_{DS}$).

38. Refrigerator that comprises a refrigeration circuit that includes a compressor (10) comprising at least two suctions (SC_1,SC_2),

the refrigerator comprising compartments to be refrigerated and comprising at least two evaporators (20) positioned in the compartments to be refrigerated (60,70);

an electronic control operatively connected to the compressor and to the valve for suction control;

at least one valve for flow control to divide the fluid connection of one of the suctions to one of the evaporators (20);

the refrigerator being characterized in that

the electronic control (90) is configured to measure at least a var-

iable of behavior of the refrigeration circuit to selectively control the suction valve and alternate an operation state of one of the evaporators (20) in a complementary manner and in a proportion of interchange established by the relation of measures of at least one variable of behavior of the refrigeration circuit,

a refrigeration capacity of a first refrigerated compartment (60), related to the capacity of a first evaporator ($CAP_{EV}1$) related to a first suction line (SC_1), and that the refrigeration capacity of a second refrigerated compartment (70), related to the capacity of a second evaporator ($CAP_{EV}2$) related to a second suction line (SC_2), result from the multiplication of the compressor's (10) capacity (CAP_{COMP}) and from the respective suction duty cycles ($D1_{DS}$,$D2_{DS}$).

39. Refrigerator according to claim 38, characterized in that the electronic control (90) is associated with at least one temperature sensor (SET,SCT) located in at least one of the compartments to be refrigerated (60,70), the electronic control (90) being configured so that the compressor's (10) operation is disconnected when the temperature sensor (SET,SCT) achieves a temperature reference value previously established.