Having described the invention, the following is claimed:

1. A method for filling one or more insulating glass units with at least one insulating gas, each of said insulating glass units having at least one interpane space defined by adjacent glass panes separated by a spacer, said method comprising:

inserting respective gas filling tubes into each said interpane space of the one or more insulating glass units;

providing a control unit with gas filling data for determining the amounts of said insulating gas(es) to fill each interpane space of said one or more insulating glass units; and

using said control unit to control the flow of insulating gas(es) to the gas filling tubes, wherein said flow of insulating gas(es) is controlled by the control unit to provide the amount of said insulating gas(es) according to the gas filling data;

removing the respective gas filling tubes from each said interpane space after each said interpane space has been filled with insulating gas(es) according to the gas filling data; and

sealing each said interpane space of said one or more insulating glass units.

2. A method according to claim 1, wherein said method further comprises:

providing said control unit with a unit identifier respectively associated with each of said one or more insulating glass units, wherein said control unit uses the unit identifier to obtain said gas filling data.

3. A method according to claim 1, wherein said method further comprises:

respectively locating said one or more insulating glass units at one or more respective holding locations of a holding rack, each holding location having at least one gas filling tube associated therewith;

providing the control unit with location identifiers associated with said holding rack, each location identifier identifying a holding location holding an insulating glass unit, wherein said control unit uses the location identifiers to determine which gas filling tube(s) to supply insulating gas thereto.

4. A method according to claim 1, wherein the interpane spaces of a plurality of insulating glass units are simultaneously filled with said insulating gas(es).

5. A method according to claim 1, wherein said holding rack is movable.

6. A method according to claim 5, wherein said movable holding rack rotates about an axis.

7. A method according to claim 1, wherein said control unit uses a timer to determine when to stop the flow of insulating gas(es) to the gas filling tube.

8. A method according to claim 1, wherein said insulating gases include Argon gas and Krypton gas.

9. A method according to claim 1, wherein at least one of said insulating glass units has first and second interpane spaces, said first interpane space is filled with Argon gas and said second interpane space is filled with Krypton gas.

10. A method according to claim 1, wherein at least one of said insulating glass units has an interpane space that is filled with a combination of Argon and Krypton gases.

11. A method according to claim 1, wherein said method further comprises:

monitoring weight of a gas source for supplying one of said insulating gases, wherein changes in the weight is indicative of the amount of insulating gas released from the gas source.

12. An apparatus for filling one or more insulating glass units with at least one insulating gas, each of said insulating glass units having at least one interpane space defined by adjacent glass panes separated by a spacer, said apparatus comprising:

a holding rack having a plurality of holding locations for holding a respective insulating glass unit;

one or more sources of insulating gases;

a plurality of gas filling tubes fluidly connectable with said one or more sources of insulating gases, one or more gas filling tubes are associated with each holding location; and

a control unit programmed to supply the plurality of gas filling tubes with amounts of the insulating gas(es) to fill each of the interpane spaces of the insulating glass units, said control unit using gas filling data to determine the amount of the insulating gas(es) to fill each of the interpane spaces of the insulating glass units.

13. An apparatus according to claim 12, wherein said holding rack is movable.

14. An apparatus according to claim 13, wherein said apparatus further comprises:
a motor for rotating said moveable holding rack about an axis.

15. An apparatus according to claim 12, wherein said control unit receives unit identifiers associated with each of said one or more insulating glass units, wherein said control unit uses the unit identifiers to obtain said gas filling data.

16. An apparatus according to claim 12, wherein said control unit receives location identifiers respectively associated with the holding locations of said holding rack, each location identifier identifying a unique holding location.

17. An apparatus according to claim 12, wherein said apparatus further comprises a scanning device for reading unit identifiers and location identifiers, said scanning device communicates the unit identifier and the location identifier to the control unit, wherein said unit identifiers identify insulating glass units, and said location identifiers identify holding locations for holding the insulating glass units.

18. An apparatus according to claim 12, wherein said apparatus further comprises a plurality of valve members for fluidly connecting the plurality of gas filling tubes with the one or more sources of insulating gases.

19. An apparatus according to claim 12, wherein said apparatus further comprises at least one manifold for delivering the insulating gas(es) to the gas filling tubes.

20. An apparatus according to claim 12, wherein said apparatus further comprises an electronic weight scale to measure the weight of one of said sources of insulating gas, said measured weight used to monitor use of the insulating gas from said source of insulating gas.

21. A method for filling a first interpane space of an insulating glass unit with multiple insulating gases, said method comprising:

inserting a first gas filling tube into the first interpane space of the insulating glass unit;

providing a control unit with gas filling data for determining the respective amounts of each of said multiple insulating gases to fill said first interpane space;

using said control unit to sequentially control the flow of each of said multiple insulating gases to the first gas filling tube, wherein said flow of each of said multiple insulating gases is controlled by the control unit to provide the respective amount of each of said multiple insulating gases according to the gas filling data;

removing the first gas filling tube from the first interpane space; and

sealing the first interpane space of said insulating glass unit.

22. A method according to claim 21, wherein said multiple insulating gases are Argon gas and Krypton gas.

23. A method according to claim 22, wherein said control unit sequentially controls the flow of the Argon gas and the Krypton gas to first fill said first interpane space with Argon gas and thereafter fill said first interpane space with Krypton gas.

24. A method according to claim 21, wherein said insulating glass unit has a plurality of interpane spaces and said method further comprises:

inserting a second gas filling tube into a second interpane space of said insulating glass unit;

providing said control unit with gas filling data for determining the respective amounts of each of said multiple insulating gases to fill said second interpane space of said insulating glass unit; and

using said control unit to sequentially control the flow of each of said multiple insulating gases to the second gas filling tube, wherein said flow of each of said multiple insulating gases is controlled by the control unit to provide the respective amount of each of said multiple insulating gases according to the gas filling data, said control unit simultaneously filling said first interpane space and said second interpane space with said insulating gases.

25. A method according to claim 21, wherein said control unit uses a timer to determine when to stop the flow of each insulating gas.

CLAIMS

1. A method for filling at least one interpane space of an insulating glass unit with at least two insulating gases, said method comprising:

providing a supply of a first insulating gas from a first source;

providing a supply of a second insulating gas from a second source;

obtaining gas filling data associated with a first interpane space of the insulating glass unit, said gas filling data indicative of the amount of the first and second insulating gases to fill the first interpane space;

filling the first interpane space with the first insulating gas in a first

filling operation according to the gas filling data; and

filling the first interpane space with the second insulating gas in a second filling operation according to the gas filling data, wherein the second filling operation occurs after completion of the first filling operation.

2. A method according to claim 1, wherein said method further comprises: supplying the first and second insulating gases to the first interpane space via a first gas filling tube insertable into the first interpane space.

3. A method according to claim 1, wherein said gas filling data includes data indicative of the volume of the first interpane space.

4. A method according to claim 1, wherein said first insulating gas is Argon gas and said second insulating gas is Krypton gas.

5. A method according to claim 1, wherein said gas filling data includes one or more of the following:

a unit identifier identifying said insulating glass unit;

length, width, and thickness of the first interpane space of said insulating glass unit;

volume of the first interpane space;

selection of gases for the first and second insulating gases;

volume of the first and second insulating gases to fill the first interpane space;

desired concentrations for each of the first and second insulating gases within the first interpane space;

desired gas flow rates for each of the first and second insulating gases for filling the first interpane space; and

fill times for each of the first and second insulating gases for filling the first interpane space.

6. A method according to claim 1, wherein said method further comprises:

obtaining gas filling data associated with a second interpane space of said insulating glass unit, said gas filling data indicative of the amount of the first and second insulating gases to fill the second interpane space;

filling the second interpane space with the first insulating gas in a third filling operation according to the gas filling data; and

filling the second interpane space with the second insulating gas in a fourth filling operation according to the gas filling data, wherein the fourth filling operation occurs after completion of the third filling operation.

7. A method according to claim 6, wherein said first interpane space is filled with the first and second insulating gases simultaneously with filling of said second interpane space with the first and second insulating gases.

8. A method according to claim 7, wherein said first and second insulating gases are supplied to the first interpane space via a first gas filling tube insertable into the first interpane space, and said first and second insulating gases are supplied to the second interpane space via a second gas filling tube insertable into the second interpane space.

9. A method according to claim 1, wherein said first and second insulating gases are selected from the group consisting of the following: Argon, Krypton, Xenon, and sulfur hexafluoride.

10. A method according to claim 1, wherein said method further comprises:

monitoring volume of the first and second insulating gases flowing into the first interpane space to determine when to stop flow of the first and second insulating gases to the first interpane space.

11. A method according to claim 1, wherein said method further comprises: providing a unit identifier associated with said insulating glass unit, said unit identifier used to obtain said gas filling data.

12. A method according to claim 1, wherein interpane spaces of a plurality of insulating glass units are simultaneously filled with said first and second insulating gases, each insulating glass unit have respective associated gas filling data.

13. A method according to claim 1, wherein said method further comprises:

monitoring weight of at least one of said first source for supplying the first insulating gas and said second source for supplying the second insulating gas, wherein changes in the weights of said first and second sources are indicative of the respective amounts of first and second insulating gases supplied by the first and second sources.

14. A method for filling at least one interpane space of an insulating glass unit with at least two insulating gases in a single gas filling operation, said method comprising:

supplying a first insulating gas from a first source;

supplying a second insulating gas from a second source;

providing a control unit with gas filling data for determining the respective amounts of each of said first and second insulating gases to fill a first interpane space of the insulating glass unit; and

using said control unit to control flow of the first and second insulating gases into the first interpane space in sequential order, wherein the flow of each of said first and second insulating gases is controlled by the control unit to provide the respective amount of each of the first and second insulating gases according to the gas filling data.

15. A method according to claim 14, wherein said first and second insulating gases are respectively Argon gas and Krypton gas.

16. A method according to claim 14, wherein said method further comprises:

providing the control unit with gas filling data for determining the respective amounts of each of said first and second insulating gases to fill a second interpane space of said insulating glass unit; and

using said control unit to control the flow of the first and second insulating gases into the second interpane space in sequential order, wherein the flow of each of said first and second insulating gases is controlled by the control unit to provide the respective amount of each of the first and second insulating gases according to the gas filling data.

17. A method according to claim 16, wherein said control unit simultaneously fills said first and second interpane spaces with said first and second insulating gases.

18. A method according to claim 14, wherein said control unit monitors the volume of the first and second insulating gases flowing into the first interpane space to determine when to stop the flow of the first and second insulating gases.

19. A method according to claim 14, wherein said method further comprises: supplying the first and second insulating gases to the first interpane space via a first gas filling tube.

20. A method according to claim 14, wherein said first and second insulating gases are selected from the group consisting of the following: Argon, Krypton, Xenon, and sulfur hexafluoride.