Summary of disclosure

Cannula units and systems known in the state of the art suffer from certain drawbacks. For example, if the cannula unit comprises a housing with two parts, which are separately produced and only subsequently connected during the manufacturing process, certain restrictions are imposed. Firstly, the materials have to be suitable for welding or gluing, such that the two housing parts can be connected. Secondly, the connecting step represents an additional step, which increases the manufacturing time and cost of the production. Thirdly, the two parts of the housing must be strictly complementary to each other, thus allowing only minor material tolerances, as otherwise leakage becomes a problem. This is a severe problem in the state of the art, as the amount of deficient products due to non-complementary housing parts is significantly high.

It is therefore an overall objective of the present invention to improve the state of the art regarding the design and use of cannula systems in the context of infusion of liquid drugs, thereby preferably avoiding disadvantages of the prior art fully or partly.

In advantageous embodiments, a cannula unit is provided, in which the occurrence of leakage is avoided or at least significantly reduced.

In further favorable embodiments, a cannula unit is provided, which can be manufactured in a time and cost efficient manner.

In additional favorable embodiments, the amount of deficient products during the manufacturing process and thus the rejection rate is reduced.

According to a first aspect of the present invention, there is provided a method for manufacturing a cannula system with a body unit and a compressing unit. The method comprises providing the body unit comprising a mounting structure, the body unit being mounted onto a molding core pin. Subsequently, a soft cannula is threaded on the mounting structure of the

than the wall thickness of the rest of the cannula which is not circumferentially surrounded by the compressing unit.

In further embodiments, the body unit and the compressing unit and/or the compressing unit and the soft cannula form a bonded connection during injection molding of the compressing unit.

In other embodiments, the methods consists of two separate injection molding steps, thereby reducing the required amount of manufacturing steps and the overall production time and costs even further.

According to a second aspect of the present invention, there is provided a cannula system comprising a soft cannula and a cannula unit for holding the soft cannula. The cannula unit comprises or alternatively may also consist of a compressing unit and a body unit, wherein the body unit contains a mounting structure and a cavity for holding a septum. The soft cannula is threaded on the mounting structure of the body unit. Furthermore, the compressing unit circumferentially surrounds the mounting structure and at least parts of the body unit. The compressing unit also comprises an internal material tension for exerting a compression force on the soft cannula and the mounting structure.

For example, such a cannula system may be manufactured by a method as described herein. Furthermore, the body unit and/or the compressing unit are typically injection molded.

In some embodiments, the mounting structure may be a protuberance, in particular a cylindrical or cubical protuberance.

In further embodiments, only a distal end area of the soft cannula is threaded on the mounting structure and the compressing unit circumferentially surrounds the distal end area of the soft cannula.

Claims

1. Method for manufacturing a cannula system with a body unit and a compressing unit, the method comprising the steps:

- Providing a body unit comprising a mounting structure, the body being mounted onto a molding core pin;
- Threading a soft cannula on the mounting structure of the body unit;
- Injection molding of the compressing unit on the soft cannula and at least parts of the body unit, wherein the compressing unit circumferentially surrounds the mounting structure, at least parts of the soft cannula and at least parts of the body unit;
- Cooling of the compressing unit, thereby providing an internal material tension of the compressing unit;
- Removing the molding core pin.

2. The method according to claim 1, wherein the body unit is provided by injection molding the body unit onto the molding core pin.

3. The method according to claim 1 or 2, wherein only a distal end area of the soft cannula is threaded on the mounting structure of the body unit and wherein the compressing unit preferably circumferentially surrounds only the distal end area of the soft cannula.

4. The method according to claim 3, wherein the distal end area of the soft cannula has a larger diameter than the rest of the cannula before the cannula is threaded on the mounting structure.

5. The method according to any of the previous claims, wherein the internal material tension of the compressing unit exerts a compression force which is directed radially inwards.

6. The method according to any of the previous claims, wherein the internal material tension of the compressing unit compresses the soft cannula.

7. The method according to any of the previous claims, wherein the body unit and the compressing unit and/or wherein the compressing unit and the soft cannula form a bonded connection during injection molding of the compressing unit.

8. The method according to any of the previous claims, wherein the method consists of two separate injection molding steps.

9. Cannula system comprising a soft cannula and a cannula unit for holding the soft cannula, wherein the cannula unit comprises a compressing unit and a body unit, wherein the body unit contains a mounting structure and a cavity for holding a septum, wherein the soft cannula is threaded on the mounting structure, wherein the compressing unit circumferentially surrounds the mounting structure and at least parts of the body unit and wherein the compressing unit contains an internal material tension for exerting a compression force on the soft cannula and the mounting structure.

10. Cannula system according to claim 9, wherein only a distal end area of the soft cannula is threaded on the mounting structure and wherein the compressing unit circumferentially surrounds the distal end area of the soft cannula.

11. Cannula system according to claim 10, wherein distal end area of the soft cannula has a larger diameter than the rest of the soft cannula.

12. Cannula system according to any of claims 10 or 11, wherein the compressing unit compresses at least the distal end area of the soft cannula.

13. Cannula system according to any of claims 9 to 12, wherein the body unit and the compressing unit are connected by a bonded connection and/or wherein the soft cannula and the compressing unit are connected by a bonded connection.

14. Use of a cannula system according to any of claims 9 to 13 in an infusion set.