

CLAIMS

1. Method of producing multiple channels ~~(12)~~ for use in a device ~~(2)~~ for exchange of solutes or heat between at least a first and a second fluid flow, wherein at least a first and a second sheet ~~(3, 4; 10; 10')~~ are comprised,

comprising the steps of:

- 10 - providing each of said first and second sheets ~~(3, 4; 10; 10')~~ with at least one profiled surface ~~(5)~~,
- joining said first and second sheets ~~(3, 4; 10; 10')~~ together with said profiled surfaces ~~(5)~~ facing against each other, whereby channels ~~(12)~~ are formed by the shape of the profiled surfaces ~~(5)~~, wherein each of said first and second sheet has a first end portion ~~(11-1)~~ and a second end portion ~~(11-2)~~, said first and second end portions ~~(11-1, 11-2)~~ having sloping intermediate surfaces ~~(13)~~ between each channel, said sloping intermediate surfaces being inclined in a direction towards a middle portion of the respective sheet, wherein the sloping intermediate surfaces ~~(13)~~ are substantially level with an outer top surface ~~(15)~~ of the channels ~~(12)~~ at the first end ~~(10-1)~~ and the second end ~~(10-2)~~, and wherein each sheet has a first lateral end portion ~~(14-1)~~ and a second lateral end portion ~~(14-2)~~ opposite said first lateral end portion ~~(14-1)~~, said first lateral end portion ~~(14-1)~~ having a greater lateral extension than said second lateral end portion ~~(14-2)~~.

2. Method according to claim 1, wherein a plurality of sheets ~~(3, 4; 10; 10')~~ are comprised, comprising the further step of

- joining said plurality of sheets ~~(3, 4; 10; 10')~~ together, whereby channels ~~(12)~~ in multiple layers ~~(7)~~ are formed by the shape of the profiled surfaces.

3. Device for exchange of solutes or heat between at least a first and a second fluid flow, the device comprising:

- at least a first and a second sheet ~~(3, 4; 10; 10')~~, each of said first and second sheet ~~(3, 4; 10; 10')~~ being provided with profiled surfaces ~~(5)~~,

said first and second sheets ~~(3, 4; 10; 10')~~ are joined together with said profiled surfaces facing against each other, whereby channels ~~(12)~~ are formed by the shape of the profiled surface ~~(5)~~, wherein each of said first and second sheet has a first end portion ~~(11-1)~~ and a second end portion ~~(11-2)~~, said first and second end portions ~~(11-1, 11-2)~~ having sloping intermediate surfaces ~~(13)~~ between each channel, said sloping intermediate surfaces being inclined in a direction towards a middle portion of the respective sheet, wherein the sloping intermediate surfaces ~~(13)~~ are substantially level with an outer top surface ~~(15)~~ of the channels ~~(12)~~ at the first end ~~(10-1)~~ and the second end ~~(10-2)~~, and wherein each sheet has a first lateral end portion ~~(14-1)~~ and a second lateral end portion ~~(14-2)~~ opposite said first lateral end portion ~~(14-1)~~, said first lateral end portion ~~(14-1)~~ having a greater lateral extension than said second lateral end portion ~~(14-2)~~.

4. Device according to claim 3 wherein said sheets ~~(3, 4, 10, 10')~~ with profiled surfaces ~~(5)~~ are mirrored to each other.
- 5 5. Device according to any of the claims 3-4 wherein the cross sections of said channels ~~(12)~~ ~~varies~~ vary along the length of the device.
- 10 6. Device according to any of the claims 3-5 wherein the number of said channels ~~(12)~~ varies along the length of the device.
- 15 7. Device according to any of the claims 3-6, further comprising a plurality of sheets ~~(3, 4, 10, 10')~~ stacked in multiple layers ~~(7)~~.
- ~~8. Device according to any of claims 3-7, wherein the sheet material has a high solubility to water.~~
- 20 89. Device according to any of claims 3-78, wherein the sheet material has a pore size between 0.1-50 nanometers.
- 25 910. Device according to any of the claims 3-8, wherein the sheet material has a pore size of 50-500 nanometers.
101. Device according to any of the claims 3-910, wherein at least one of said sheets is hydrophobic.
- 30 112. Device according to any of the claims 3-101, wherein at least one of said sheets is hydrophilic.
123. Device according to any of the claims 3-112, wherein at least one of said sheets is a metal.