CLAIMS

1. Process to manufacture an interconnected stack of thermoplastic frames (1) having two sides by
stacking the thermoplastic frames (1,1a) to obtain a stack (22) of frames (1) such that the facing sides of two neighbouring frames (1,1a) are in contact with each other at a contact area,
wherein as a result of stacking the frames (1,1a) and as a result of at least one opening (5,6,7,8) present in the frame (1,1a) at least one longitudinal conduit (23) is formed which runs along the length of the stack (22),
wherein as a result of stacking the frames (1,1a) and as a result of an elongated gutter as present on or in at least one side of the frame at the contact area a branched conduit (24) is formed at the contact area, which branched conduit (24) is fluidly connected to the longitudinal conduit (23), and
wherein a pressurised melt of a plastic material is supplied to the elongated conduit (23) and branched conduits (24) while the stack (22) is held together by external means (20) to obtain the interconnected stack (22) of thermoplastic frames.

2. Process according to claim 1, wherein the melt of a plastic material is a melt of a thermoplastic elastomer.

3. Process according to any one of claims 1-2, wherein the thermoplastic frames (1,1a) are polypropylene frames, polyethylene frames or polyamide frames.

4. Process according to any one of claims 1-3, wherein the frames (1,1a) are obtained by injection moulding.

5. Process according to claim 4, wherein the frames (1,1a) are insert moulded work products comprising an insert consisting of a heat transfer sheet.

6. Process according to claim 5, wherein the frames (1,1a) are polypropylene frames and the insert is an aluminium sheet and wherein the pressurised melt

of a plastic is a pressurised melt of a Styrene Ethylene Butylene Styrene Block Copolymer.

7. Process according to any one of claims 1-6, wherein at least two longitudinal conduits (23) are formed as a result of stacking the frames and wherein the at least two longitudinal conduits (23) are not fluidly connected to each other and wherein the two elongated conduits (23) are each fluidly connected to separate branched conduits (24).

8. Process according to any one of claims 1-7, wherein the external means is a container (20) having an open position and a closed position, has an interior shape which is the form negative of the interconnected stack (22) when in the closed position and wherein the container allows positioning of the stack (22) of thermoplastic frames and removing of the interconnected stack (22) of thermoplastic frames when in the open position and wherein the container (20) is provided with at least one inlet (25) for the pressurised melt of a plastic and which at least one inlet (25) is fluidly connected to the at least one longitudinal conduit (23) when the container is in a closed position.

9. Process according to claim 8, wherein to the stack (22) an added chamber is added to obtain a stack (22) with the added chamber and wherein the container has an interior shape which is the form negative of the interconnected stack with the added chamber and wherein the added part is connected to the stack by the melt of a plastic material as supplied to the container.

10. Process according to any one of claims 1-9, wherein the stack of interconnected frames (22) is suited to be part of a plate heat exchanger.

11. Interconnected stack (22) of thermoplastic frames (1,1a) having two sides wherein the facing sides of two neighbouring frames are connected by fusion bonding at a contact area and obtained by the process in accordance with any of the preceding claims.

12. Interconnected stack of thermoplastic frames according to claim 11, wherein the thermoplastic elastomer is a styrene ethylene butylene styrene block copolymer.

13. Interconnected stack according to any one of claims 11-12, wherein the thermoplastic frames (1,1a) are polypropylene frames, polyethylene frames or polyamide frames.

14. Interconnected stack according to any one of claims 11-13, wherein the heat exchange sheet is a metal sheet.

15. Interconnected stack according to claim 14, wherein the thermoplastic frames (1,1a) are polypropylene frames and the heat exchange sheet is an aluminium sheet.

16. Interconnected stack according to any one of claims 11-15, wherein an added chamber is connected to a side of the stack.

17. Interconnected stack according to claim 16, wherein the added chamber is an injected moulded part made from the same thermoplastic material as the frames and connected to the side of the stack by fusion bonding.

18. Interconnected stack according to any one of claims 14-17 as part of a plate heat exchanger.