CLAIMS

1. A generalized integrated DOC-DPF-SCR post-treatment apparatus, comprising a case (1), a DOC-DPF unit (5), two SCR units (2), an urea mixer (4), and an exhaust pipe (3), wherein

the number of the urea mixer (4) is one or two;

the case (1) has a square cross-section;

the two SCR units (2) are arranged symmetrically with each other with respect to a diagonal of the square cross-section along which the DOC-DPF unit (5) and the exhaust pipe (3) are arranged;

exhaust gas in the DOC-DPF unit (5) is discharged into the urea mixer (4) to form mixed exhaust gas, the mixed exhaust gas in the urea mixer (4) is discharged into the SCR units (2), and then is discharged into the exhaust pipe (3) after being processed by the SCR units (2), characterized in that

the urea mixer (4) is symmetrically arranged with respect to the diagonal of the square cross-section along which the DOC-DPF unit (5) and the exhaust pipe (3) are arranged, and the urea mixer (4) is arranged between the DOC-DPF unit (5) and the exhaust pipe (3),

the DOC-DPF unit (5) and the exhaust pipe (3) are respectively arranged at two diagonal corners with respect to the square cross-section of the case (1),

an inlet of the exhaust pipe (3) is arranged at a rear end of the case (1), an exhaust port (31) of the exhaust pipe (3) is arranged on a front end cover (11) of the case (1), a rear end cover (13) of the case (1), a bottom wall of the case (1) or a side wall of the case (1).

2. The generalized integrated DOC-DPF-SCR post-treatment apparatus according to claim 1, wherein in a case that the number of the urea mixer (4) is one, an outlet of the urea mixer (4) is in shunting communication with two inlets of the two SCR units (2) by a second connection disk (7) arranged at a front end of the case (1).

3. The generalized integrated DOC-DPF-SCR post-treatment apparatus according to claim 1, wherein in a case that the number of the urea mixer (4) is one and the two SCR units (2) are respectively referred to as a first SCR unit and a second SCR unit, an outlet of the urea mixer (4) is in communication with the first SCR unit by a second connection disk (7) arranged at a front end of the case (1), and an outlet of the first SCR unit is in serial communication with an inlet of the second SCR unit by a third connection disk arranged at a rear end of the case (1).

4. The generalized integrated DOC-DPF-SCR post-treatment apparatus according to claim 1, wherein in a case that the number of the urea mixers (4) is two, an outlet of the DOC-DPF unit (5) is in shunting communication with inlets of the two urea mixers (4) by a first connection disk (8) arranged at a rear end of the case (1), and outlets of the two urea mixers (4) are in communication with inlets of the two SCR units (2) in one-to-one correspondence respectively by two second connection disks (7) arranged at a front end of the case (1).

5. The generalized integrated DOC-DPF-SCR post-treatment apparatus according to any one of claims 1 to 4, wherein a heat preservation structure is arranged in the case (1).

6. The generalized integrated DOC-DPF-SCR post-treatment apparatus according claim 5, wherein the heat preservation structure is made of thermal insulation cotton.

7. The generalized integrated DOC-DPF-SCR post-treatment apparatus according to any one of claims 1 to 4, wherein a mounting bracket (9) is arranged on a side of the case (1) where the SCR units (2) and the exhaust pipe (3) are arranged, and the mounting bracket (9) is configured to mount the generalized integrated DOC-DPF-SCR post-treatment apparatus onto a vehicle frame.

8. The generalized integrated DOC-DPF-SCR post-treatment apparatus according to any one of claims 1 to 4, wherein an intake pipe assembly (6) is arranged on a front end cover (11)

of the case (1), and an inlet of the intake pipe assembly (6) on the front end cover (1) faces forward, upward or sideward.

9. The generalized integrated DOC-DPF-SCR post-treatment apparatus according to any one of claims 1 to 4, wherein a sensor and a urea nozzle (C) are arranged in the case (1).