CLAIMS

What is claimed is:

1. A biaxial or tri-axial eccentric rotor volume pulsed deformation plasticizing method, that the method comprising the steps of: conveying a volume of materials formed between two or three engaged eccentric rotors formed by spiral structures and eccentric cylindrical structures connected alternately, and an inner surface of a stator, the volume changes periodically along an axial direction and a radial direction of the two or three engaged eccentric rotors, thereby achieving a volume pulsed deformation plasticizing and a conveying of the materials during engaged rotation of the two or three engaged eccentric rotors; wherein both a pitch of the spiral structure of the eccentric rotor and a length of the eccentric cylinder are gradually decreased in an axial direction.

2. A biaxial or tri-axial eccentric rotor volume pulsed deformation plasticizing device, the device comprising: a hopper, two or three engaged eccentric rotors, a stator and a drive unit, the eccentric rotors being disposed in an inner cavity of the stator and connected with the drive unit, respectively; the hopper is in communication with an inner cavity of the stator, and the eccentric rotors are all formed by length-varying spiral structures and eccentric cylindrical structures connected alternately; the spiral structures of the eccentric rotors are engaged to each other; and axial positions of the eccentric cylindrical structures within the same rotor of each of the two or three rotors are the same; wherein the device is configured to convey a volume of materials formed between the two or three engaged eccentric rotors formed by the spiral structures and the eccentric cylindrical structures connected alternately, and the inner surface of the stator, the volume changes periodically along an axial direction and a radial direction of the two or three engaged eccentric rotors, thereby achieving a volume pulsed deformation plasticizing and a conveying of the materials during engaged rotation of the two or three engaged eccentric rotors; wherein both a pitch of the spiral structure of the eccentric rotor and a length of the eccentric

cylinder are gradually decreased in an axial direction.

3. The biaxial or tri-axial eccentric rotor volume pulsed deformation plasticizing device according to claim 2, characterized in that: an axis of the spiral structures of the two or three rotors is the same as a rotation axis of the rotor, and the axis of the eccentric cylindrical structures is eccentric with respect to the rotation axis of the rotor, with the eccentric cylinder in different positions on the same rotor having the same eccentric direction.

4. The biaxial or tri-axial eccentric rotor volume pulsed deformation plasticizing device according to any one of claims 2 to 3, characterized in that: the three eccentric rotors comprise, a middle eccentric rotor, a right eccentric rotor and a left eccentric rotor, respectively; the middle eccentric rotor, the right eccentric rotor and the left eccentric rotor are arranged in a horizontal arrangement in the inner cavity of the stator; and the spiral structures of the right eccentric rotor and the left eccentric rotor are engaged to the spiral structure of the middle eccentric rotor.

5. The biaxial or tri-axial eccentric rotor volume pulsed deformation plasticizing device according to any one of claims 2 to 3, characterized in that: there are two eccentric rotors, which are a first eccentric rotor and a second eccentric rotor, respectively, both engaged in a same or different direction in the inner cavity of the stator.