WHAT IS CLAIMED IS:

1. A buff module for buffing a substrate, comprising:

a buff table for holding the substrate, the buff table being rotatable; and

a buff head to which a buff pad is attached, being rotatable and movable in a direction of approaching the buff table and a direction of moving away from the buff table, the buff pad configured to move relative to the substrate while the buff pad contacts with the substrate;

wherein the buff head further includes:

an elastic member;

a support member attached to a surface of the elastic member, the surface facing toward the buff table;

a pressurizing mechanism which is capable of adjusting contact force of the buff pad to the substrate by supplying a fluid to the elastic member; and

a guide member that surrounds the elastic member, the guide member including an exposed end surface facing the substrate supported by the buff table when buffing the substrate, the end surface of the guide member configured to not contact with the substrate when buffing the substrate, the guide member formed by a resin material,

wherein the buff pad is attached to the elastic member through the support member.

2. The buff module according to claim 1, further comprising:

a supply line for supplying a process liquid to the substrate through an opening defined in the buff head.

3. The buff module according to claim 1,

wherein the elastic member includes a bag body whose volume changes according to a supply amount of the fluid,

wherein the bag body includes a plurality of spaces where the fluid is not mutually communicated, and

wherein the pressurizing mechanism can independently supply the fluid to the plurality of spaces.

4. The buff module according to claim 3, wherein the plurality of spaces are concentrically arranged.

5. The buff module according to claim 1, wherein the

buff pad is smaller than the substrate in diameter, and the buff module further includes:

a driving mechanism capable of rotating the buff table, and

a buff arm capable of holding the buff head, rotating the buff head and also swinging the buff head along a surface of the substrate.

6. A substrate processing apparatus comprising:
a chemical mechanical polishing module; and
the buff module according to claim 1 for performing post-processing of a substrate processed in the chemical mechanical polishing module.

7. The buff module according to claim 1, wherein the support member is a support plate.

8. The buff module according to claim 1, wherein the support member is made of a metal.

9. The buff module according to claim 1, wherein the support member is made of a resin.

10. The buff module according to claim 1, wherein the buff pad is fixed on the support member by an adhesive.