CLAIMS

1. A resin molding apparatus, comprising:

a mold die including:

an upper die; and

a lower die;

a mold clamp mechanism configured to clamp the mold die,

a film supply mechanism configured to supply a release film to a space between the upper die and the lower die and including:

an unwinding mechanism including an unwinding roller configured to unwind the release film; and

a film conveyor mechanism configured to convey the release film; and

a control section configured to control operation of the film supply mechanism,

the control section being configured to, when the film conveyor mechanism conveys the release film, cause the unwinding roller to rotate in a direction in which the film conveyor mechanism conveys the release film, and

the control section adjusts a rotation speed of the unwinding roller in accordance with a first diameter of the unwinding roller with the release film therearound to achieve a predetermined velocity difference between a conveyance velocity with which the film conveyor mechanism conveys the release film and an unwinding velocity with which the unwinding mechanism unwinds the release film.

2. The resin molding apparatus according to claim 1, wherein

the control section calculates the first diameter based on a second diameter of the unwinding roller with no release film therearound.

3. The resin molding apparatus according to claim 2, wherein

the unwinding mechanism includes:

a motor configured to rotate the unwinding roller; and

a sensor configured to detect an amount of the rotation of the motor, and

the control section calculates the first diameter by multiplying a first output value of the sensor by the second diameter and dividing a resulting product by a second output value of the sensor for the unwinding roller with no release film therearound which

second output value corresponds to an amount of the release film having been conveyed.

4. The resin molding apparatus according to claim 2, wherein

the unwinding mechanism includes:

a motor configured to rotate the unwinding roller; and

a sensor configured to detect an amount of the rotation of the motor, and

the control section calculates the first diameter by multiplying a first amount of the release film having been conveyed when an output value of the sensor has reached a predetermined value by the second diameter and dividing a resulting product by a second amount of the release film having been conveyed when an amount of the rotation of the unwinding roller with no release film therearound has reached the predetermined value.

5. The resin molding apparatus according to any one of claims 1 to 4, further comprising:

a fixing frame supporting the mold die; and

an up-down movement mechanism supported by the fixing frame and configured to move the unwinding mechanism and the film conveyor mechanism together upward and downward,

wherein the up-down movement mechanism moves the unwinding mechanism and the film conveyor mechanism upward to supply the release film onto the upper die before the mold clamp mechanism moves the lower die upward.

6. A resin molding apparatus, comprising:

a mold die including:

an upper die; and

a lower die;

a mold clamp mechanism configured to clamp the mold die,

a film supply mechanism configured to supply a release film to a space between the upper die and the lower die and including:

an unwinding mechanism including an unwinding roller configured to unwind the release film; and

a film conveyor mechanism configured to convey the release film;

a control section configured to control operation of the film supply mechanism;

a fixing frame supporting the mold die; and

a pair of movable rollers a first one of which is on a path of the conveyance of the release film and toward the unwinding mechanism and a second one of which is on the path and toward the film conveyor mechanism, the movable rollers being supported by the fixing frame and movable in conjunction with a change in a relative position between the lower die and the upper die of the mold clamp mechanism; wherein

the control section being configured to, when the film conveyor mechanism conveys the release film, cause the unwinding roller to rotate in a direction in which the film conveyor mechanism conveys the release film, and

the movable rollers are being pressed by springs in such a direction as to apply tension to the release film.

7. The resin molding apparatus according to claim 6, wherein

the springs each have a pressing force larger than the tension applied to the release film and smaller than a force by which the unwinding mechanism holds the release film.

8. A method for producing a resin molded product with use of a resin molding apparatus according to any one of claims 1 to 7,

the method comprising:

the film supply mechanism supplying the release film to a space between the upper die and the lower die;

the mold clamp mechanism clamping the mold die; and

supplying a molding target substrate and a resin material to the mold die and molding the molding target substrate with resin,

wherein during the supplying of the release film, the film supply mechanism, when the film conveyor mechanism conveys the release film, causes the unwinding roller to rotate in a direction in which the film conveyor mechanism conveys the release film.