WHAT IS CLAIMED IS:

1. An injection molding system comprising:

a first actuator system including:

a first piston drive having at least two pressure line connectors to drive a piston to open or close a molding nozzle;

first pressure lines connected to a changeover valve having at least two changeover pressure line connectors, wherein the first changeover valve pressure line connector is connected to a first pressure line and the second changeover valve pressure line connector is connected to a second pressure line, wherein the second pressure line is connected to the first pressure line connector of the first piston drive;

an electronically adjustable flow control valve having a first pressure line connector and a second pressure line connector, wherein the first pressure line connector of the adjustable flow control valve is connected to the first pressure line to allow a connection to the first pressure line connector of the changeover valve, and the second pressure line connector of the adjustable flow control valve is connected to a third pressure line which establishes a connection to the second pressure line connector of the piston drive;

a first electronic flow sensor for sensing flow rate in the first, second and/or third pressure lines;

a controller connected to the adjustable flow control valve and to the first electronic flow sensor, configured to electronically adjust the flow control valve depending on information of the first electronic flow sensor, and controlling timing and speed of the movement of the piston;

a second actuator system, including:

a second piston drive having at least two pressure line connectors to drive another piston to open or close a molding nozzle;

second pressure lines connected to one or more changeover valves having a pressure line connector and a tank line connector and at least two changeover pressure line connectors, wherein the first changeover valve pressure line connector is connected to a fourth pressure line and the second changeover valve pressure line connector is connected to a fifth pressure line, wherein the fifth pressure line is connected to one of the two pressure line connectors of the second piston drive, and wherein the fourth pressure line is connected to the other one of the two pressure line

connectors of the piston drive;

a second electronic flow sensor for sensing the flow rate in the first or second pressure line of the second actuator system; and

wherein the controller is connected additionally to the second electronic flow sensor of the second actuator system wherein the first and the second actuator systems are configured to be controlled in a cascade, and wherein the electronically adjustable flow control valve is also configured to be controlled by the information of the second electronic flow sensor of the second actuator system.

2. The injection molding system according to claim 1, wherein the first electronic flow sensor is adapted to measure flow rate in the first pressure line between the adjustable flow control valve and the first changeover valve, or wherein the first electronic flow sensor is adapted to measure flow rate in the second pressure line between the first piston drive and the first changeover valve or wherein the first electronic flow sensor is adapted to measure flow in the third pressure line between the first piston drive and the adjustable flow control valve.

3. The injection molding system according to claim 1, wherein a first pressure sensor adapted to measure the pressure in the first pressure line between the adjustable flow control valve and the first changeover valve; or wherein additionally a second pressure sensor is adapted to measure the pressure in the second pressure line between the first piston drive and the first changeover valve; or wherein a third pressure sensor is adapted to measure the pressure in the third pressure line between the first piston drive and the adjustable flow control valve.

4. The injection molding system according to claim 1, wherein the controller is configured to determine a beginning and/or an end of an injection phase of a molding cycle based on information of the first electronic flow sensor, and to adjust the flow control valve, in an initial and/or final cycle position.

5. The injection molding system according to the preceding claim 4, wherein the controller is configured to determine the end of the injection phase of the molding cycle if the information from the first electronic flow sensor indicates that the piston is in a position in which a molding

nozzle is closed.

6. The injection molding system according to the preceding claim 5, wherein the controller is configured to dynamically adjust the flow control valve in the injection phase, after determining the beginning of the injection phase, controlling thereby a position and the speed of the change of the position of the first piston drive and thus the molding nozzle.

7. The injection molding system according to the preceding claim 6, wherein the controller is configured to allow an interactive reprogramming of the dynamical adjustment of the flow control valve.

8. The injection molding system according to claim 1, wherein a second flow control valve is located in the second pressure line.

9. The injection molding system according to claim 1, comprising several first actuator systems, and their respective electronic flow sensors and their respective flow control valves are connected to the controller and the controller, which is configured to control one or more of the respective flow control valves based on one or more of the information of the respective electronic flow sensors.

10. The injection molding system according to claim 1, wherein after receiving information from the first electronic flow sensor, that a threshold has been passed, the adjustable flow control valve is opened or closed to a predefined throttle level and/or flow by the controller.

11. The injection molding system according to claim 1, wherein the controller is configured to calculate based on the information of the first electronic flow sensor the position of the piston of the piston drive.

12. The injection molding system according to the previous claim 11, wherein a check valve is connected in parallel to the adjustable flow control valve, providing a by-pass, when extending

or retracting the piston of the first piston drive.

13. The injection molding system according to claim 1, wherein the controller is configured to calculate the viscosity of a pressure fluid in any of the first, second or third pressure lines based on the information of the first electronic flow sensor and to compensate a deviation of the viscosity from a predefined value by adjusting the electronically adjustable flow control valve.

14. Injection molding system comprising:

at least one first actuator-system, the first actuator system comprising:

at least one piston drive having at least two pressure line connectors to drive a piston to open or close a molding nozzle;

pressure lines connected to a changeover valve having a pressure line connector and tank line connector and at least two changeover pressure line connectors, wherein the first changeover valve pressure line connector is connected to a first pressure line and the second changeover valve pressure line connector is connected to a second pressure line, wherein the second pressure line is connected to the second pressure line connector of the piston drive;

an electronically adjustable flow control valve having a first pressure line connector and a second pressure line connector, wherein the first pressure line connector of the adjustable flow control valve being connected to the first pressure line to allow a connection to the first pressure line connector of the changeover valve, and the second pressure line connector is connected to a third pressure line which establishes a connection to the first pressure line connector of the piston drive;

at least one electronic flow sensor for sensing flow rate in the first, second and/or third pressure lines;

a controller connected to the adjustable flow control valve and to the at least one electronic flow sensor, configured to electronically adjust the flow control valve, depending on information of the at least one electronic flow sensor, controlling thereby the timing and the speed of the movement of the piston and the molding nozzle; and

further comprising several first actuator systems, and their respective sensors and their respective flow control valves are connected to the controller and the controller, which is configured to control one or more of the flow control valves based on one or more of the information of the sensors and wherein the several actuator systems are configured to be controlled in a cascade, and wherein the flow control valves of one actuator system is also configured to be controlled by the information of the at least one sensor of a different actuator system.

15. The injection molding system according to claim 14, wherein a first flow sensor is adapted to measure the flow rate in the first pressure line between the adjustable flow control valve and the changeover valve, and/or wherein a second flow sensor is adapted to measure the flow in the second pressure line between the piston drive and the changeover valve and/or wherein a third flow sensor is adapted to measure the flow in the third pressure line between the piston drive and the adjustable flow control valve.

16. The injection molding system according to claim 14, wherein a first pressure sensor adapted to measure the pressure in the first pressure line between the adjustable flow control valve and the changeover valve, and/or wherein additionally a second pressure sensor is adapted to measure the pressure in the second pressure line between the piston drive and the changeover valve and/or wherein a third pressure sensor is adapted to measure the pressure in the third pressure line between the piston drive and the adjustable flow control valve.

17. The injection molding system according to claim 14, wherein the controller is configured to determine a beginning and/or an end of the injection phase of a molding cycle based on information of the at least one sensor, and to adjust the flow control valve, in an initial and/or final cycle position and wherein the controller is configured to determine the end of the injection phase of the molding cycle if the information from the at least one sensor indicate that the piston is in a position in which a molding nozzle is closed, for a predefined timespan, and wherein the controller is configured to dynamically adjust the flow control valve in the injection phase, after determining the beginning of the injection phase, controlling thereby a position and the speed of the change of the position of the piston and thus the molding nozzle, wherein also information of at least one timer and/or volume quantity information are used to determine the point of time and/or the

position of the piston the speed of the dynamical adjustment of the flow control valve, and wherein the controller is configured to allow an interactive reprogramming of the dynamical adjustment of the flow control valve.

18. The injection molding system according to claim 14, wherein a second flow control valve is located in the second pressure line.

19. The injection molding system according to claim 14, additionally comprising a second actuator system, comprising:

said second actuator system including:

a second piston drive having at least two pressure line connectors to drive a second piston to open or close a molding nozzle;

second pressure lines connected to one or more changeover valves having a pressure line connector and tank line connector and at least two changeover pressure line connectors, wherein the first changeover valve pressure line connector is connected to a fourth pressure line and the second changeover valve pressure line connector is connected to a fifth pressure line, wherein the fifth pressure line is connected to the connector of the second piston drive, and wherein the fourth pressure line is connected to the second connector of the second piston drive;

a second electronic flow sensor for detecting the flow rate in the fourth and fifth pressure line;

the controller is connected additionally to the second electronic flow sensor to allow adjustment of the flow control valve based on information of the second electronic flow sensor.

20. The injection molding system according to claim 14, wherein after receiving information from the at least one sensor, that a threshold has been passed, the adjustable flow control valve is opened or closed to a predefined throttle level/flow level by the controller.

21. The injection molding system according to claim 14, wherein the controller is configured to calculate based on the information of the at least one flow sensor the position of the piston of the piston drive, preferably based on the information of the third flow sensor over a defined time interval, and preferably wherein a check valve is connected in parallel to the adjustable flow control valve, providing a by-pass, when extending or retracting the piston of the piston drive.

22. The injection molding system according to claim 14, wherein the controller is configured to calculate the viscosity of a pressure fluid in the pressure line based on the information of the at least one flow sensor and to compensate a deviation of the viscosity from a predefined value by adjusting one or more of the flow control valve(s).