WHAT IS CLAIMED IS:

1. An injection ~~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 ~~connectable~~ 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 ~~connectable~~ to a first pressure line and the second changeover valve pressure line connector is connected ~~connectable~~ to a second pressure line, wherein the second pressure line is connected to the first ~~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 ~~allowing~~ 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;

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

a controller connected to the adjustable flow control valve and to the at least one 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.

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

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 changeover valve; 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; 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.

4. The injection molding system according to claim 1, wherein the controller is configured to determine a beginning and/or an end of injection phase of a molding cycle based on information of the at least one 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 at least one electronic flow sensor indicate that the piston is in a position in which a molding nozzle is closed~~, preferably for a predefined timespan~~.

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 ~~begin~~ 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 preferably 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~~.

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, additionally comprising a second actuator system, comprising:

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

pressure lines connectable to one or more change over valves having a pressure line connector and a tank line connector and at least two change over pressure line connectors, wherein the

first change over valve pressure line connector is connectable to a first pressure line and the second change over valve pressure line connector is connectable to a second pressure line, wherein the second pressure line is connected to one of the two pressure line connectors ~~the connector~~ of the piston drive, and wherein the first pressure line is connected to the other one of the two pressure line connectors ~~second connector~~ of the piston drive;

at least one electronic sensor for ~~detecting the flow~~ sensing the flow rate in the first or ~~and~~ second pressure line; and

the controller is connected additionally to the at least one electronic sensor of the second actuator system and allows to control the electronically adjustable flow control valve of the first actuator system based on information of the at least one electronic sensor of the second actuator system.

10. The injection molding system according to claim 1, comprising several first actuator systems, and their respective electronic ~~the~~ sensors and their respective ~~the~~ 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.

11. The injection molding system according to the previous claim 9, wherein the first and the second ~~several~~ actuator systems are configured to be controlled in a cascade, and wherein the flow control valve ~~valves~~ of one of the actuator systems ~~system~~ is also configured to be controlled by the information of the at least one electronic sensor of the other ~~a different~~ actuator system and preferably by a timer and/or by a certain amount of fluid measured.

12. The injection molding system according to claim ~~the previous claims~~ 8, wherein the first and second flow control valves ~~several actuator systems~~ are configured to be controllable in a cascade.

13. The injection molding system according to claim 1, wherein after receiving information from the at least one 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 ~~level/flow level~~ by the controller.

14. The injection molding system according to claim 1, wherein the controller is configured to calculate based on the information of the at least one electronic flow sensor the position of the piston of the piston drive~~, preferably based on the information of the third flow sensor (P3) over a defined time interval~~.

15. The injection molding system according to the previous claim 13, 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.

16. 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 ~~the~~ pressure lines ~~line~~ based on the information of the at least one electronic flow sensor and to compensate a deviation of the viscosity from a predefined value by adjusting the electronically adjustable ~~one or more of the~~ flow control valve ~~valve(s)~~.

~~17. Method for controlling an actuator of an injection molding system, the actuator having at least one piston drive comprising a piston to open or close a molding nozzle,~~
~~an electronically adjustable flow control valve connected to the piston drive to throttle a pressure fluid driving the piston drive, at least one electronic sensor for detecting the flow of the pressure fluid, a controller connected to the adjustable flow control valve and to the at least one sensor, comprising the steps of:~~
~~determining based on information from the sensor, the beginning of an injection molding cycle; and~~
~~controlling the throttle of the adjustable flow control valve during the injection molding~~
~~cycle by the controller thereby controlling the position, the speed and the timing of the movement of the piston and thus the molding nozzle.~~

~~18. The method according to the previous claim 16, wherein the injection molding system~~
~~comprises, several actuators and several sensors, and wherein the controller is connected to the several sensors and actuators, and is controlling one or more of the adjustable flow control valve based on one or more of the sensors.~~

~~19. The method according to the previous claim 17, wherein the several actuator systems are controlled in a cascade, and wherein the flow control valves of one actuator system is also controlled by the information of the at least one sensor of a different actuator system and preferably by a timer and/or by a certain amount of fluid measured.~~

~~20. The method according to claim 16, wherein the controller determines a beginning and/or an end of injection phase of a molding cycle based on information of the at least one sensor, and adjusts the flow control valve to an initial and/or final cycle position.~~

~~21. The method according to claim 16, wherein the controller determines 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, preferably for a predefined timespan.~~

~~22. The method according to claim 16, wherein the controller uses information of the sensors for the detection of the beginning of the molding cycle and/or a timer to control the valve during the injection molding cycle.~~

~~23. The method according to claim 16, wherein the controller calculate the viscosity of a pressure fluid in the pressure line based on the information of the a least one flow sensor and compensates a deviation of the viscosity from a predefined value by adjusting one or more of the flow control valve(s).~~