

Innovative into the Future – the new drive technology

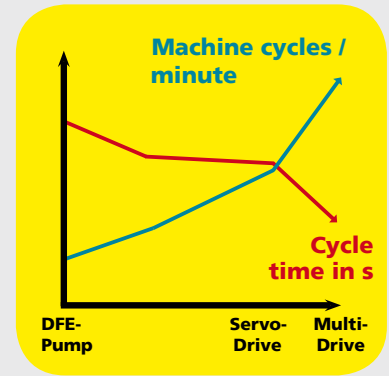


Multi – Drive

The patent-pending **drive concept Multi-Drive** is intended for the purpose that two servo-driven pumps can be completely flexible used (both **parallel** or **together**) for a variety of requirements.

Depending on the kind of use the pump performances of both servo drives can be individually adapted for **simultaneous movements** and functions in the injection moulding cycle.

Due to the interplay of the two hydraulic drives the functionality of a completely electrically driven injection moulding machine is displayable with regard to accuracy and speed and can be combined with the advantages of its hydraulic counterpart.



Twin drive in one cycle

In the cycle process shown in the picture below - production of screw caps - the two servo drives are working parallel to each other.

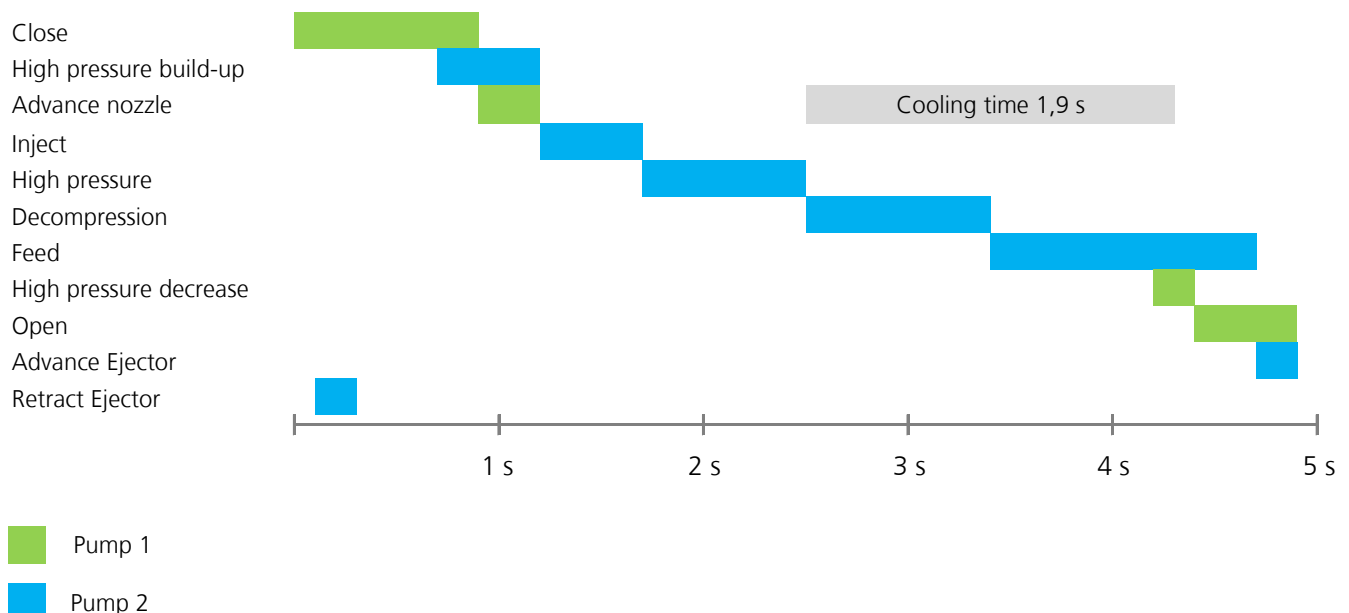
While one servo drive performs the closing process and the nozzle drives forward (pump 1) the other servo pump drives the ejector back und builds up high pressure.

The dosing and the reduction of high pressure are also running parallel to each other. The two drives are sharing the opening of the mould and the driving forward of the ejector.



Multi-Drive

Sample cycle screw cap (see right)



Technical execution and description

Multi-Drive consists of two different pump drives and their interplay allows machine movements which have not been possible up to now. These are fast movements due to the common use of the pumps on the same axis and parallel movements of different axes for the reduction of the cycle time.

The different functions of the drive systems are available for the user if required, so that the user can select from the existing options as needed. This allows the user a flexible utilizing of the advantages of the system whenever they are required for the production process.

The main target of the **Multi-Drive** is the reduction of the cycle time of an injection moulding machine by parallel and fast machine movements in order to increase the production per unit of time. At the same time further decisive application-technical advantages are being created.

Multi-Drive cannot be upgraded.



Differences to a standard BOY 100 E:

- Two instead of one servo pump are installed.
- The complete control unit has been adapted, in particular the control block and the valves.
- The complete equipment of the control block with the valves is much larger and more complex.

Application examples

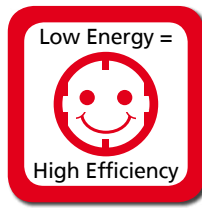
Demand	Application example	Demands on the Injection moulding machine	Picture
Technical part with high demands on the filling degree	Dishwasher insert	- High injection volume - Very high injection force, due to the long flow paths	
A thin-walled part (0.3 mm wall thickness) with a high flow path-wall thickness ratio and very short cycle times of less than 5 s	4-fould yoghurt cups	- Very high injection speed - Parallel dosing and ejection is vital	
High speed application	Screw cap	- Very short cycle time - Very short cooling time - Plasticizing beyond the cooling time and - Ejection parallel to the opening	



Procan ALPHA®



Machine status



Productivity



Made in Germany



Your benefits

- Combination of the

hydraulic advantages:

low electrical connected value and thus low operating costs, high energy density and powers, low wear

electrical advantages:

high precision, high speeds, short cycle times, high flexibility due to parallel function

- Increase of the production efficiency up to 35 %
- With only **one** injection moulding machine a wide range of applications is created, for example for the thin-wall technology, high-speed applications (packages) and technical parts.
- Flexible adaptation of the drives for the required application

Increase of the product efficiency ...

- reduced dry cycle times due to faster movements:
On the one hand the cycle time will be reduced and on the other hand the adaptability for demands with high speeds rises, e.g. for the production of thin-walled parts.
- due to higher precision of the parts:
Avoidance of rejects and less examination efforts.
- due to the reduction of the cycle time by parallel movements:
The great benefit can be explained by the fast-running thermoplastics processing, e.g. the production of screw caps. The manufacturing of this part is very cost-sensitive. Large quantities of plastic have to be processed within very short cycle times. Simultaneous processes, e.g. parallel dosing in connection with closing movements are essential.
- due to the avoidance of necessary „settling times“:
When using single pump drives, waiting periods are required in case of dynamic operating conditions. This is necessary so that the single drive can adjust to the new operating situation. When using several drives „settling times“ are no longer needed.

You would like to learn more about BOY ?



Data and Equipment (complete overview)



Competence brochure



Dr. Boy GmbH & Co. KG

Industriegebiet Neustadt / Wied
Neschener Str. 6
53577 Neustadt-Fernthal
Germany

Phone: +49 (0)2683 307-0
Fax: +49 (0)2683 32771
E-Mail: info@dr-boy.de
Internet: www.dr-boy.de



BOY-APP
free of charge at
<http://app.dr-boy.de>

