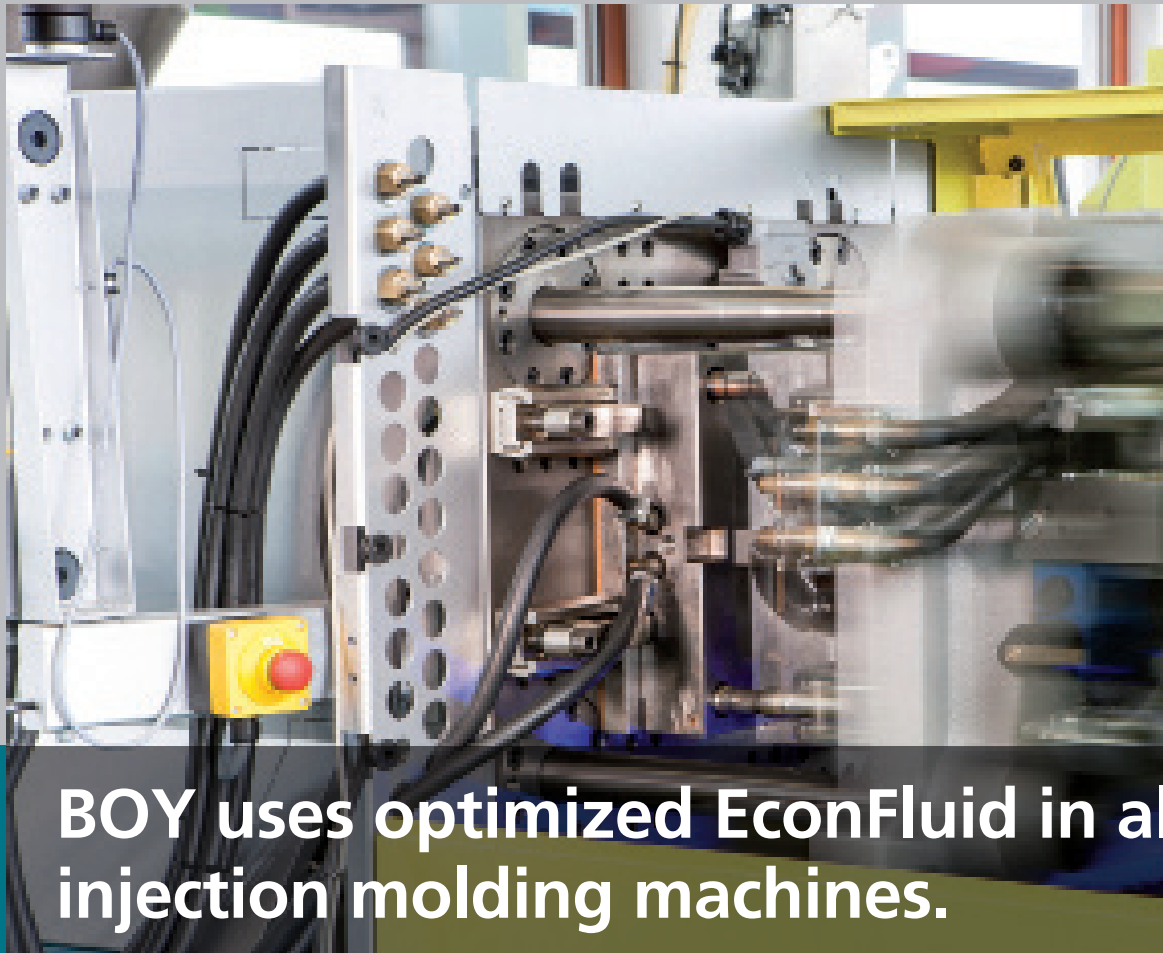




Spritzgiessautomaten



BOY uses optimized EconFluid in all injection molding machines.

Each manufacturing company, especially in the plastics sector, is under considerable competitive pressure. BOY injection moulding machines offer real benefits in this respect. BOY machines work with high precision, reliably and exceptionally economical. Low machine hour rates are the basis for a competitive parts production. Not least the high energy efficiency of the BOY injection moulding machines contributes to this. This supports companies in energy auditing in accordance with the Energy Efficiency Directive 2012/27/EU.

Part of the energy-saving optimization measures is the change of our previously used HLP- hydraulic fluid in our injection molding machines to the optimized EconFluid.

The hydraulic fluids hitherto used in the BOY injection moulding machines already fulfill all requirements in terms of functionality and applicability. The fact that a more suitable, almost „**tailor-made fluid**“ opens up considerable energy-saving potential has been proven in complex tests for the BOY injection moulding machines.

The viscosity of a hydraulic fluid is crucial for the efficiency of a machine hydraulics. Modern high-performance fluids consist of high quality base oils and are refined with the best quality

additives. They allow an extremely high viscosity index with optimum service life. At low temperatures, they are more flowable, at higher temperatures they remain more viscous than comparable standard fluids.

But what is the benefit of this **optimized viscosity** of the fluid in terms of power consumption? BOY injection moulding machines are already highly fuel-efficient thanks to the servo-drive and the EconPlast technology.



FACTS AND FIGURES

Machine	BOY 35 E	
Clamping Force	350 kN	
Pump drive	servo-motor	
	HLP 46	EconFluid
Energy consumption/work cycle (depending on temperature)	1,96 – 2,22 kW	1,78 – 2,01 kW
Energy consumption/work cycle (depending on temperature) with EconPlast equipment	1,60 – 1,81 kW	1,55 – 1,63 kW
Percentage savings: 7 - 10.3 % (depending on temperature)		

With 8,400 operating hours there is an annual cost saving of approx. 420,- €.

A general decision for more efficiency

When a better hydraulic fluid saves energy, a simple and virtually cost-neutral option for increasing energy efficiency is available for all hydraulic manufacturing plants. Hence our logical decision to use our high-performance fluid the **EconFluid**.

One machine. Two fluids. Two cycles.

Three temperatures.

Test machine was a BOY 35 E with 350 kN clamping force. It was used once with and once without EconPlast equipment. The test cycles were copied on the Euromap 60.1 cycle. Recorded and evaluated were the energy consumption of the drive, the system pressure, the pressure in the flow and return flow of the hydraulic motor and the ejector, as well as the pump speed.

BOY EconFluid: The result was the „tailor-made“ BOY hydraulic fluid

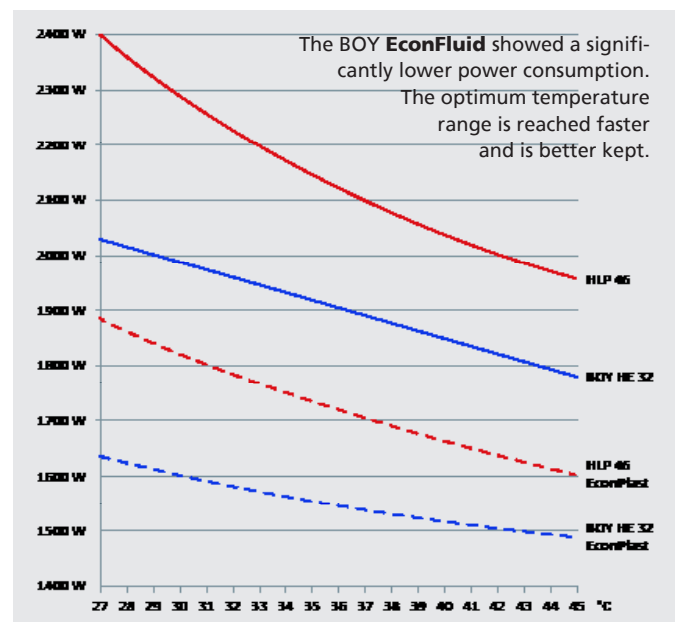
The test cycles were performed at three different oil temperatures:

30 °C, 35 °C and 44 °C. In the comparison test, standard fluids available on the market were first used and evaluated. In the end, however, a special type was developed and adapted to the conditions in BOY injection moulding machines. This one was finally evaluated. It is also the one that will be launched exclusively under the name BOY **EconFluid**. In the actual final test, BOY **EconFluid** had to meet the challenge of a standard comparison hydraulic oil with a viscosity of 46 mm²/s.

Savings effect: EconFluid meets the high expectations

The energy requirement of the drive was decisively reduced by the use of the optimized oil. Compared to the HLP 46 the savings effect is partially higher than 10%. Even in the case of the lowest measurement, the savings were still 7%.

An additional savings effect: The change intervals for the



optimized fluid are extending. With proper care, BOY **EconFluid** can be used for up to **five years**.

Temperature effect: EconFluid stays cooler

Additionally it turned out that the BOY **EconFluid** was much cooler during operation, which reduced the energy requirement for the oil cooling. This effect has not been measured and is therefore not included in the current energy savings effect.

Environmental effect: BOY EconFluid saves sustainably

Less energy consumption means less CO₂ for the environment. Each kWh saved is about 600 g less CO₂.

The combination of technologies

The combination of the dynamic-efficient servo drive, our patented **EconPlast** technology and the **EconFluid** increases significantly the efficiency of injection moulding machines.